

# American Aviation

The Independent Voice of American Aeronautics

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MAY 1, 1944  
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## Beyond the War

THE time will come shortly after the European invasion when the Army's Air Transport Command will be faced

with a serious problem involving this nation's international prestige and post-war commercial relations.

It is a problem which might as well be faced now—and a solution found.

Today the Air Transport Command has in force a number of contracts with domestic and international airlines providing for military air services to Europe, Alaska, Australia, Africa and the Far East. It is inevitable that the need for continuing these contract services will begin to diminish after the invasion. The handwriting is already showing up on the wall. ATC will have an abundance of airplanes and personnel. It will find it difficult to retain airlines under contract when it has more than ample resources with which to do the job itself.

Yet the removal of these contract carriers from the international scene would be catastrophic, and some of the far-seeing officers in ATC well know this. A little sound thinking and planning—before it is too late—can work to the advantage of ATC, the airlines, and the nation.

Aside from the Pan American operation to England, the ATC is just about the only means of communication between the United States and the rest of the world. The U. S. civilian has virtually been cut off from the world since the war began because the ATC can only carry passengers who are directly concerned with the winning of the war. If this single test cannot be met, U. S. citizens have no means of transportation.

(Turn to page 6)

*Fortnightly Review*



Heads Aero Chamber

James P. Murray, Vice-President of Boeing Aircraft Co., was re-elected President of the Aeronautical Chamber of Commerce at its recent Los Angeles meeting. He is a former air mail pilot. (See Page 19)

## Late Bulletins

### AVCO Postwar Plan

The Aviation Corp. has announced plans for postwar manufacture of a long list of household appliances, in addition to diversified aircraft products. Col. Philip J. Reilly has been appointed to head the distribution program for the civilian products.

### 2 Intra-State Permits

Two more Colorado airlines have received permission from the Colorado Public Utilities Commission to open intra-state air routes. They are Massey & Ransome Flying Service, Inc., Fort Collins, and Mountain States Aviation, Inc., Denver. These cases may prove to be a pattern for future intra-state operations.

**Material Moving:** WPB has called upon all aircraft companies to have their unusable surplus materials segregated by June 1 and reported to the Aircraft Scheduling Unit on Revised Form 41, telling them frankly that this is necessary to save them from possible heavy losses on inventory. Physical segregation of idle inventories has begun at all plants.

The ASU-41 series of forms have been revised for the proper recording of these inventories when physically segregated. It is believed that regardless of what mechanics for property disposal are finally effected, or what agency is finally set up to handle the problems, physical inventories and segregation of surpluses are absolutely necessary. Henry Nelson, materiel coordinator for NAWPC, points out: "Industry can bring tremendous pressure on all agencies to help with this problem once it has accomplished this phase of the program."

**Rising Costs:** As shown on page 21, the operating costs of the U. S. airlines increased more rapidly than revenues during 1941-43. This trend is continuing in 1944. Some airlines are taking drastic steps to stop the rise. Result may be a leveling off, possibly a drop.

**Russian Talks:** As this issue went to press, the aviation "mission from Moscow" was expected momentarily. As soon as these officials arrive, talks with U. S. representatives will start. Officials here attach significance to the fact that Russian delegates are coming from Moscow. They believe it shows the importance with which Moscow views the coming talks.

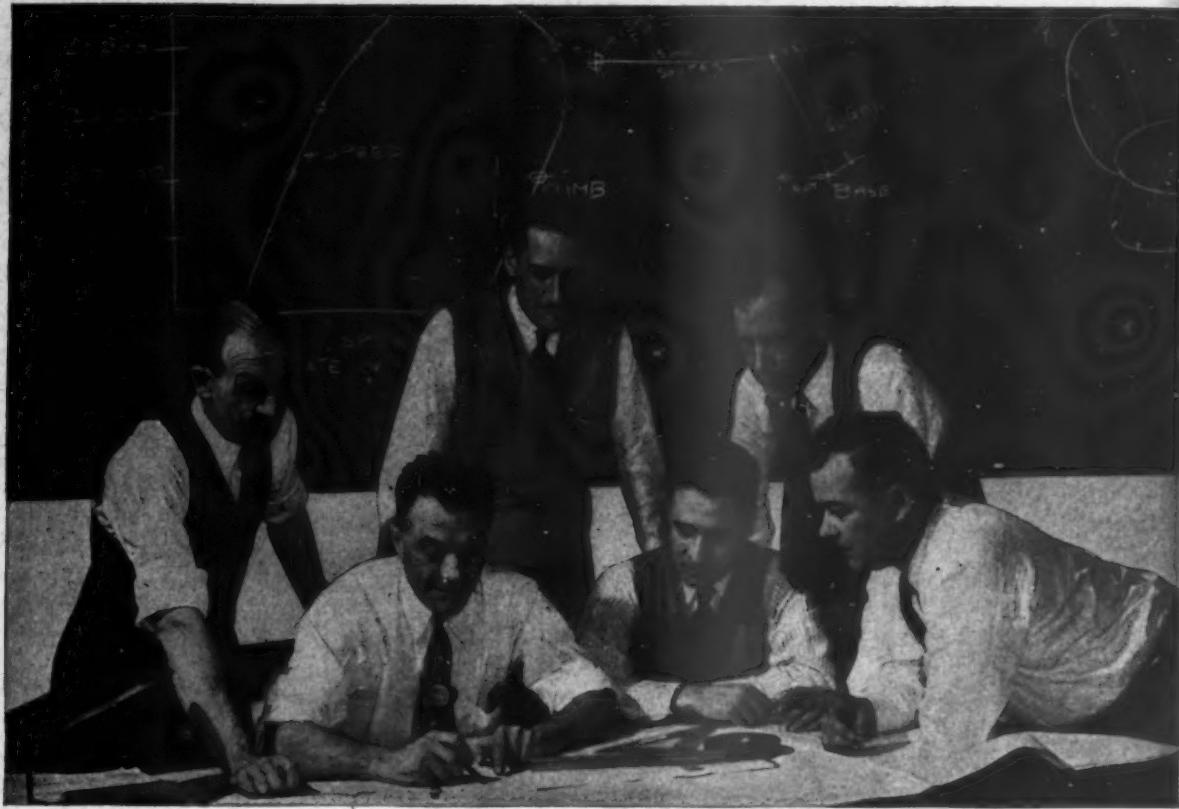
**Outlook on Planes:** The chances of the airlines getting more planes for commercial service are very good. Two factors contribute: (1) attitude of the Army has become increasingly more favorable; (2) the airlines fared very well in the under-26 draft, securing deferments for necessary personnel. The Army has some more planes practically earmarked for return. Actual return, however, may await military developments.

**New Engineers:** Closing of the ASTP program dried up the last source for new engineering personnel for the aircraft program. As a result, the industry is now combining (Turn to page 9)

*Trend of  
The News*

20c

# BUT WILL IT FLY?



**P**ut the armour of a tank on it, give it the fire-power of a tank destroyer, send it up into the stratosphere and give it power to out-speed anything that flies. That, in essence, was the kind of airplane the A.A.F. Matériel Command needed . . . and wanted Republic to build.

On paper, the P-47 Thunderbolt looked formidable—over six and a half tons of the most concentrated aerial fighting power ever designed. Certainly, anyone would have been forgiven for asking: "But will it fly?"

The answer has been dramatically written by Thunderbolt pilots in every theater of war. It is commonplace to read in the papers where Thunderbolt pilots are besting the enemy by scores of up to 7 to 1.

Thunderbolt performance is, indeed, one of the near miracles of this war . . . thanks in great part to the men

who fly them. And Thunderbolt production is another remarkable achievement. In eleven months from the word "go", the P-47 was designed, engineered, developed, fabricated . . . and flown!

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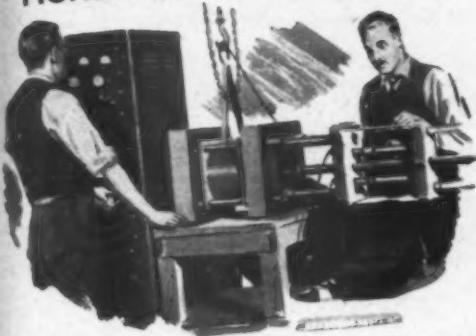
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# Highlights from LAISTER-KAUFFMANN

## the story of Murray Nanson Whitehead

Murray Nanson Whitehead, Vice-President of the Laister-Kauffmann Aircraft Corporation, has complete faith in the individual's importance in man's struggle to conquer the air. And from that October day when he first took over the controls of a plane he has known that he would have a part in this conquest. Through years of actual hardship he never lost this conviction. Month after month he looped and raced and dove and nearly shook the guts out of the little ship on which he developed and improved his ideas. He was going to build a plane that every man could own—or else! A small, light, inexpensively operated plane that would give every man a taste of exploring the air just as the low priced automobile had opened up the broad land of America for every man to travel.

When Murray Whitehead met Jack Laister he found that, while Laister's first interest was gliding, he, too, believed that the most important phase of man's fight to master the air was yet to come. He, too, believed that not until everyone had the opportunity to know the joy of flight would this mastery be won. Soon Jack Laister was helping him refine plans for his low cost dream plane. Blueprints, production estimates and actual "mock-up" took shape rapidly.

Meanwhile, Murray Whitehead scouted for a backer. When he found John R. Kauffmann, the Laister-Kauffmann Aircraft Corporation trio was completed. Laister, the engineer-designer; Kauffmann, the business executive who was also a mechanical engineer; and Whitehead, the visionary promoter-inventor. Here was a gang that would go places.

Then came war. The boys who would have flown Murray Whitehead's planes were on their way to Tokio, Rome and Berlin. Laister-Kauffmann was awarded an Army contract to manufacture gliders... Jack Laister's gliders... and Murray Whitehead jumped into this work with all the enthusiasm he had given his own project.



Today, as Laister-Kauffmann gliders roll off the production line ready to pass their static and flight tests with flying colors, Murray Whitehead spends his Sundays towing experimental ships to help Jack Laister check their performance. Sometimes, circling back to the field, his mind slips away from the present to that day when the boys will come back from the war eager to fly for the fun of it, eager to see the Laister-Kauffmann ships destined to serve them. He thinks of the morning he can pick up his phone and say... Okay, Charlie, she's ready. We'll deliver her this afternoon. And she's a honey!

*Wings for the Future*

**Laister-Kauffmann**  
Aircraft Corporation  
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# American Aviation

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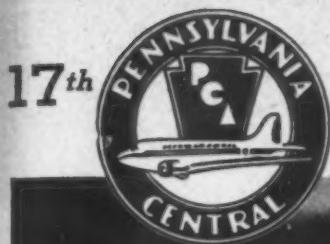
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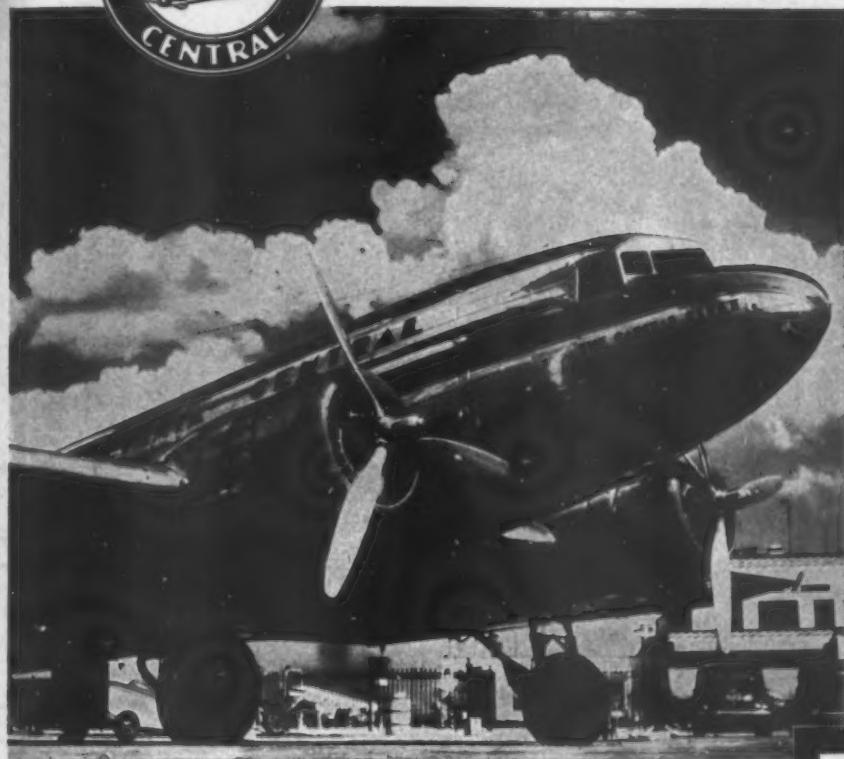
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# Editorial

(Continued from page 1)

But after the invasion is successful, and looking forward to the time when the European war comes to an end but before normal peace returns, a great many American business, industrial and financial executives will have every reason to want to travel in connection with postwar affairs. There is every reason why they should. Yet ATC will not be able to carry them—and ATC is the only means of transport to most of the areas of the world.

Why not, then, establish a system of temporary certificates for the U. S. airlines now operating under ATC contract which would permit them to sell tickets under a rigid priority system and retaining the operations under the Air Transport Command? It must be emphasized that such certificates should be purely temporary, subject to 30-day cancellation, and should *not* bear a relationship to postwar international airline operations. It merely would provide a means under military protection and supervision, to carry on through the transition period which we are rapidly approaching and which will continue until full peace returns.

The net results would become readily apparent. The Army would have first call on the services; it could commandeer on priority an entire plane in the same way that it now does on domestic commercial airlines. But the taxpayer would also get a break in that all non-Army space could be sold and charged against the operation. In the end the operations would unquestionably require a certain amount of underwriting from the Army, but this is a small price to pay for a quasi-military operation providing this nation's only transport link with the remainder of the world. Such a plan would also—and this is quite important—remove the need for haste in settling this nation's foreign air policy for the postwar.

If some such plan is not worked out, we face either a vital transition period in which the U. S. has no transport link with the world except a 100% military one, or the ATC will have to modify its operation and go into the business of selling tickets. In other words, ATC would have to go into the airline business itself, with Presidential approval, and no right-thinking man in aviation wants this to happen.

If there is one major fault in the basic conception behind the Air Transport Command to date, it has simply been that ATC is a 100% military operation and failing to do the vastly important job of being the transportation instrumentality of the U. S. with the remainder of the world during the war. But ATC has been concentrating on a huge war task, purely military, and has had no time or inclination to think of the vastly larger issues of the war. It may not have been so important that it should think beyond a military transport operation up through the time of the European invasion. But it will be highly important from then on.

The U. S. is all too often more concerned with winning the tactical battles of the moment instead of keeping an eye on the strategic war. Other and older nations long ago learned to keep their eyes on goals ahead as well as on the battles. Unless we watch our

steps, we will have accomplished only tactical military victories and have lost the war itself. Other nations are not overlooking the basic issues of the war.

The British, much smarter in international matters than we have ever been, have not been asleep in world air transportation. While our Air Transport Command assumed virtually the sole job of being this nation's foreign air link, the British have not forgotten the importance of providing air transportation for business, industrial and financial people. Even today, we are told, a business man in Cairo can buy an air ticket for England. We aren't criticizing the British for being smart, but we are critical of our own policy of failing to see the importance—and necessity—of providing similar transportation for our own people. Whatever glory military men attain for winning battles cannot substitute for the loss of our international prestige and business relations in failing to see the bigger issues of the war.

So we suggest to the proper authorities that a system of temporary certificates, under Air Transport Command supervision, be authorized in due course to keep the contract carrier services in operation during the transition period leading to the final end of the war some time hence. If the present carriers are withdrawn from foreign operations, and if American people with legitimate missions cannot obtain transportation, then we will have done irreparable harm to the nation as a whole. Having provided airplanes for many other nations which are using those planes for over-all purposes other than purely military, we would indeed have earned and deserved the appellation of plain simple, unadulterated saps.

## Air Tourism Abroad

THERE is no doubt in our minds that international air transportation has a bright and unlimited future, but it also seems clear that airline operators are not going to start hauling vacationists to all corners of the globe as soon as the war ends. Nor for some time thereafter.

World cruises have long been popular for those who have the time—and money—to spend on vacations. The airplane can make all parts of the world much more accessible from the time element than a pleasure cruise. But those who dream of the future must not overlook several important factors in global vacationing.

Cruise ships were in reality traveling hotels. The vacationist lived on the ship, had most of his meals on board, and merely dabbled in foreign lands during playtime hours under expert escort. At no time did the cruise ship vacationist have to rub elbows with the natives of other lands except under the most ideal and fleeting times. He was seeing a movie.

But the airplane is not a cruise ship. Passengers must live and eat on land, and as some millions of our soldiers now know too well, adequate accommodations on the American level are not frequently found around

(Turn to page 9)



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Early realization of the importance to the war effort that aircraft hydraulic equipment comply with Winterization Specifications of the Army Air Forces led to the extensive research and testing that Vickers has done in this field. The cooperation of the Army and Navy services has had much to do with the success of this Vickers program.

The Vickers Aircraft Hydraulic Units illustrated here have either Yellow Dot or White Dot marking, as indicated. The Yellow Dot signifies that the unit complies with Winterization Specifications of the Army Air Forces for operation between -65 deg. F. and 160 deg. F. The White Dot indicates tentative approval of the unit: it is functionally satisfactory having proper mechanical fits (clearances checked with both maximum and minimum tolerances at temperatures from -65 deg. F. to 160 deg. F.) but does not have AN approved winterized packings. Just as soon as winterized packings become avail-

able, they will be incorporated in these units and request made for Yellow Dot approval.

Vickers is making every effort through its extensive research, engineering, manufacturing and testing facilities to assure early compliance of all other Vickers Aircraft Hydraulic Units with the Winterization Specifications.

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*Trends*

(Continued from page 1)

ing the lists of discharged service men for engineers with required skills. Donald Weber, formerly administrative assistant for the West Coast AWPC, has been designated to coordinate the job and has been meeting with engineering personnel panels of the East and West Coast Councils to implement the task.

**Rationing Plan:** A plan for controlling the use of 73-octane aviation gasoline (see story page 36) through CAA regional offices has been endorsed by Assistant Secretary of Commerce William A. M. Burden. In a letter to the OPA, Burden endorsed the proposal of the Aviation Petroleum Products Allocation Committee and recommended that local ration boards honor all requests for 73-octane which are endorsed by regional offices of CAA. It is believed that such a system is acceptable to almost all gasoline rationing personnel at OPA.

**McCarran Bill Preview:** The McCarran Bill proposing a single American flag line for international air transport adopted in exact detail much of the philosophy laid down several months ago by the Carnegie Endowment for International Peace. Recommending such an airline, Dr. Arthur E. Traxler of the Carnegie organization said that only through a single company can the United States international air transportation "maintain its place of leadership in competition with the government-owned and subsidized companies of other nations." The Carnegie report was reviewed in the Jan. 1, 1944, issue of *American Aviation*.

**Kaiser-Hughes Contract:** The Kaiser-Hughes contract for construction of a plywood flying boat remains in status quo

despite announcement recently that Donald Nelson had authorized cancellation. No actual cancellation order has been issued, and it is probable that none will be. However, another contract is in the making which will call for Kaiser-Hughes to turn out a special type of plane, other than its plywood cargo ship.

**Offers Received:** Many months ago, Canadian and U. S. pilots flying the Atlantic for the British Air Transport Command decided to form a company which, immediately after the war, would furnish complete, fully-trained flight crews to any carrier needing them. No publicity has been forthcoming on the organization during the past several months, but it is still in existence and still has plans. Two requests for crews have already been received, at least one from a South American enterprise—which could use them immediately, it is said. Unable to secure releases from their present war jobs, crews could not accept such an offer.

**Air Mail Delays:** Post Office officials still insist, as they have for many weeks, that air mail is not being unduly delayed. As high as 20% of the mail goes by train when the weather is bad, but this is not the ordinary situation, they say. It is admitted, however, that the situation could be greatly improved by return of more equipment to the airlines. The PO has gone strongly on record for such a move—Postmaster General Frank C. Walker is emphatic on the subject since his recent coast-to-coast trip. Air mail loads are running slightly over 40% heavier than at the same time last year.

## Editorial

(Continued from page 6)

the world. In Africa, in the Middle East, in Asia, in India and in the South Pacific, living is tough.

Mere cents-per-mile operating costs do not tell the story of international air transportation. Customs, health agencies, food problems, decent sleeping quarters, and guidance while on the ground—all are major problems for air transport to solve in the future. These problems are not insurmountable, but they will cost money. And time.

The health angle alone will become a very large problem after the war. A person can contract a serious disease in Africa one day, be in New York the next. Perhaps the disease will not make itself apparent for three or four days. Inoculations of the type taken by our armed forces are not a very appealing inducement to vacationists. And American tourists are notably helpless in foreign lands—they want to be cared for during the entire trip. The average American has been led to believe that when he buys a ticket for travel outside the U. S., the ticket covers just about everything in the book. For the most part he is completely non-self-reliant abroad.

It is our feeling that planners for global air travel have not yet begun to take into consideration all of the complexities of such transportation through the air. On the other hand, the main trade routes to Europe should not be unduly encumbered if the planning is done cor-

rectly. We are not trying to dash cold water on global air travel, because its future is tremendous during the next half century, but we do suggest a cold-blooded, realistic approach to problems which travelers going abroad will expect to be solved.

## Startling Discovery

THE OTHER DAY the Association of American Railroads issued a lengthy study report on air transportation. It is divided into ten chapters and contains over fifty tables, diagrams and illustrations. The railroad boys must have had a devilish time in their labors because Chapter I starts out very soberly as follows:

"The airplane differs from any other transportation vehicle in that power is required to hold up its weight in addition to overcoming its resistance to forward motion. The forward speed needed to produce lift in the wing must be supplied by the engine. An airplane stays aloft because the air pressure on the upper surface of a forward moving airplane wing is less than atmospheric pressure." And so it went.

The railroad boys better be careful. One of these days they'll discover that people fly in the dang things and then won't there be hell to pay!

WAYNE W. PARRISH

**WINGS AFTER WAR.** By S. Paul Johnston. 129 pp. Duell, Sloan & Pearce, New York. \$2.00.

Cautious and conservative S. Paul Johnston has written a cautious and conservative book on aviation and the postwar world. A former aviation magazine editor, an author in his own right, and now with Curtiss-Wright Corporation, Johnston has been in aviation for many years. He speaks with authority. His small and readable book is a gem.

Johnston evidently decided there were too many rosy and fanciful predictions being made about postwar aviation. He proceeds to inflate a long row of balloons, each representing somebody's flight of fancy, and then methodically pricks each one. His method of deglamorizing is as cold as a precision instrument, as calm as a professor of English in a college. Those who are dreaming of a tremendous air expansion after the war, of a helicopter in every garage and aerial freight trains clouding the skies, will not like his book. But those deeply concerned with the economics of the business will thank him for doing a splendid and coldly analytical job.

Johnston doesn't stick his neck out too far into the future. He is careful to consider only the first five or ten years following the war. Like other keen analysts of aviation, he knows that aviation has an almost unlimited future. But he well knows that aviation will continue to develop the slow and the hard way. The Promised Land, he warns, may not be quite as near as it seems.

Cost-per-ton-mile, he reminds us, will be the one and only criterion by which glider trains, cargo and passenger planes, will be judged, while the helicopter has been grossly over-publicized considering the fact that there are a very few in existence and hardly more than a dozen persons in the country who can be called helicopter pilots. He believes, as do most engineers, that the helicopter has a great future—but not very soon.

He deflates postwar private flying by emphasizing that until the private airplane has a real utility, and can do everything an automobile can do plus fly, the private airplane is limited in sales to those persons who can afford both an automobile and an airplane. And, he should have added, limited to those who have a use for an airplane at all.

The debunking is not destructive. Actually he sees a steady growth in almost all phases of aviation, but a relative growth that is far under the wild dreams of the Sunday supplements. There are few comments in this compact little book with which we found disagreement. The charts could stand much improvement for clarity, but the writing is good, the thinking sound. It's a book that should get a lot of reading everywhere.

W. W. P.

**THE HELICOPTERS ARE COMING.** By C. B. F. Macauley. 165 pp. Whittlesey House, New York. \$2.00.

One doesn't read many pages in Mr. Macauley's book without discovering that the author is a helicopter enthusiast. He approaches his topic with vigor and for a time one goes along with his enthusiasm. But after talking the reader into believing that the helicopter is something really great, the author proceeds to do a swift job of unsealing by conjuring up visions of commuting in snowstorms at the close of a business day, of endless numbers of helicopters almost darkening the skies, and otherwise scaring the hell out of the innocent reader who wonders if life is going to be worth living after all.

Mr. Macauley knows his helicopter subject pretty well and his technical writing background entitles him to speak out. But there is evident haste of endeavoring to get on the bookshelf first with a popular subject, and of being carried away into flights of fancy about a helicopter world that may come some day but certainly not in the predictable future.

The author seriously endeavors to point out that much development work remains

to be done on the helicopter, but trounces the critics who doubt that the helicopter will be in everyone's garage before too long. His description of a helicopter is something the layman can understand, and his historical survey is adequate. It's when he gets into the realm of social impact that he starts flying at high altitude himself. The average reader is apt to grow weary. He doth protest too much that helicopter commuting will be very simple.

When he says "The helicopter is such a simple, easily-controlled craft that if it were desired to go round the corner and pick up Mrs. Jones it would be easier to fly the distance than to taxi or roll along the surface," we could visualize those 36-foot rotor blades nicely mixed up with telephone wires, automobiles, clotheslines, trees, radio antennas and other contraptions, especially on a windy day. And the picture of having to commute day after day some 40 or 50 miles to work in a helicopter, rain or shine, fog, wind, snow and sleet, hardly seems appealing to an easy-going apartment dweller who likes to keep his feet dry.

The helicopter has a tremendous future, no doubt of it. It should be encouraged. But there is no need to over-sell or to sell so hard that you have to knock it into the reader with a sledge-hammer. The author is one of the capable contemporary aviation writers of the nation; we imagine he has calmed down somewhat by now so that he isn't having helicopter nightmares.

W. W. P.

**THEN THERE WAS ONE—The U.S.S. Enterprise and the First Year of War.** By Eugene Burns. Illustrated. Harcourt, Brace and Co., New York. 179 pp. \$2.50.

Vice Admiral Thomas A. Kinkaid, referring to the situation in the Pacific in November, 1942, said: "then there was one patched-up carrier . . ." This book got its name from Admiral Kinkaid's remark. The whole story of the Enterprise, the only carrier at Pearl Harbor on Dec. 7, 1941, and, almost a year later, the only major carrier the United States had left in combat to hold the Pacific line, is told well by Burns, an AP man assigned to the ship. Burns describes the various actions in which the Enterprise participated—"every carrier action save one (Coral Sea) in the first year of war." Thirty-two pages of excellent action photos are included.

**BASIC AIRPLANE MECHANICS.** By H. G. Lesley. Drawings. John Wiley and Sons, Inc., New York. 404 pp. \$2.50.

Eastern Air Lines' superintendent of maintenance explains the theory of airplane construction, and gives directions for repair and maintenance of the various components of the airplane. Lesley, who previously authored a book on Airplane Maintenance, does a good job of describing and analyzing materials used in plane construction and repair. He specifies standards of workmanship; outlines routine procedures; and notes special precautions which the airplane mechanic should take. Perspective drawings, now universally accepted as an indispensable training aid, are generously used throughout the book.

SINCLAIR REFINING CO. has published a 44-page booklet, "Aircraft Engine Lubrication," containing a new altitude engine performance chart revealing problems of pressures, temperatures, and power loss that must be solved in flight operation; also full color charts of lubrication systems of leading aircraft engines.

**AIRCRAFT ENGINES OF THE WORLD (1944 Edition).** By Paul H. Wilkinson. 320 pp. \$8.50. (Illustrated).

Here is the complete data on 130 of the latest aircraft engines, including 10 of the new auxiliary engines used on aircraft. The United States section contains 48 standardized pages of engine data, and there are 28 for Great Britain, 20 for Germany, 17 for Italy, 12 for France, 3 for Russia, and 2 for Japan. Condensed data is given of 275 variations of these basic power plants. Since the 1941 edition of this work, 65 pages of new data have been added and 15 pages of obsolete data omitted. Author Wilkinson visited the centers of aircraft engine production in England, France, and Germany in 1939, just before the outbreak of war in Europe. Much of the information and many of the 142 photographs in the book are exclusive. This book should be a "must" for all who work with or study aircraft engines.

**POWER AND FLIGHT.** By Assem Jordanoff. Harper & Bros., New York. 314 pp. \$2.50. (Illustrated by diagrams.)

This book contains accurate analyses of the aircraft engine, its structure, power, and mechanics. Jordanoff has handled the subject with deft language, and has employed extensive charts and diagrams to bring the mechanics of flight within the beginner mechanician's focus. He discusses the background of power through fundamental formulae, and the theories of engine motivation. This is a worthwhile text for any reader who requires a sound knowledge of the aviation engine.

—E. B. H.

**FLYING POWER.** By Dr. C. J. Hylander. The MacMillan Company, New York. 164 pp. \$2.00.

Dr. Hylander is head of the engines department in the Naval Flight Preparatory School at Colgate University, and has a thorough knowledge of the subject about which he writes. He explains, in simple language, aircraft engines and their operation. Discussed are such subjects as the principle of an internal combustion engine, and the essential parts of a four cycle engine. He explains how fuel gets to the induction system, how the induction system feeds fuel and air to the cylinder, how the engine is lubricated, and how the propeller completes the work of the engine. The author has drawn his own illustrations, which add substantially to the value of the book.

#### NEW GOVERNMENT PUBLICATIONS:

Issuance of several new technical publications relating to aviation has been announced recently by various government departments.

F. H. Grieme, of the Technical Development Division, CAA, has prepared a report entitled "The Establishment of a Restricted Area for Seaplane Operation." The report known as Technical Development Note No. 22 gives considerable information with reference to the establishment of such an area in San Francisco harbor based on operations of Pan American Airways, Inc.

Other pamphlets and publications which have been released recently are: "Construction of a Goniometer for Use in Determining the Candlepower Characteristics of Beacons," TD Report No. 39, CAA; "The Relief of Case Hardening Stresses in Aircraft Lumber," No. 1371; "The Significance of the Discolorations in Aircraft Veneers: Mahogany and Khaya," No. 1379; "A Field Method of Determining Specific Gravity by Use of Increment Cores or Auger Chips," No. 1587; and "Black Streak in Western Hemlock: Its Characteristics and Influence on Strength," No. 1500. All of them have been issued in cooperation with the Army-Navy-Civil Committee on Aircraft Design Criteria by the U. S. Department of Agriculture, Forest Service, Forest Products Laboratory, Madison, Wis.

Another report by the Technical Development Division, CAA, is entitled "Aircraft Corrosion Resulting from the Use of Calcium Chloride on Airport Runways," which is listed as T.D. Note No. 33. It was prepared by C. J. Janes.

**PAY-OFF ON PLANNING**



## FASTEST FLIGHT EVER MADE across the United States

BACK before the war began, TWA fore-saw super-luxury air trips from coast to coast in the span of the midnight-to-breakfast hours.

We had even begun work on a ship to make such trips possible — a giant new plane to carry 57 passengers in air-conditioned, overweather comfort at pursuit-plane speeds.

Now that ship, the Lockheed Constellation, has flashed its maiden way across the continent in history-writing time.

It traveled as you see it here, flying TWA colors. But actually this was only a token flight, and Constellation No. 1, like the remainder of the fleet ordered by TWA, will go immediately into military service instead of into commercial use.

That is as it should be. We are glad indeed that our prewar planning in the interest of finer air-travel will be able to pay off in the interest of earlier victory first.

But the forethought that produced the Constellation will not stop. Its record-setting flight stands as only an advance sampling of still better air transportation in days to come.

You may count on TWA to lead in providing the public with those finer facilities, as already it has pioneered in the development of such fine equipment as the DC-2, the Stratoliner and now the Constellation.

*Jack Foye* President

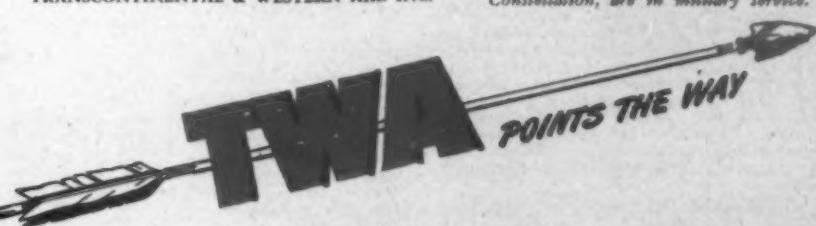
TRANSCONTINENTAL & WESTERN AIR, INC.

In addition to regular Transcontinental Commercial Air Service, TWA has been serving the nation in the war through Overocean Air Transport Service • Military Aircraft Modification • Army Aircraft Mechanic, Radio Operator and Radio Mechanic Training • Pilot, Navigator and Flight Engineer Training • 4-Engine Flight Training • Engineering Research Projects • and North American Air Cargo Service.

This is the Constellation built by Lockheed for TWA, and designed as the fastest and most powerful overland and overwater transport ever produced. With four Wright engines developing more than 8,000 b.p., it cruises at high, overweather altitudes, travels at speeds to equal many fast pursuit ships, and normally can accommodate 57 passengers in its air-conditioned cabin. The interior and certain equipment specifications have been altered to meet military requirements.



THIRD OF A KIND. The Constellation is the third great plane to be built to TWA specifications. First was the DC-2, forerunner of the DC-3 which is now the standard "first line" plane of the nation's airlines. Next came the 4-engine, 33-passenger Boeing Stratoliner, which introduced overweather flying and cut transcontinental flight time to 14 hours. All of the Stratoliners, like the Constellation, are in military service.



# Letters

April 12, 1944.

To the Editor:

I couldn't help writing you about your editorial in the April 1 issue of *American Aviation*, entitled "The Time is Passing". I used to worry about the Aeronautical Chamber of Commerce and finally gave up in disgust because nobody was willing to trust anybody. Everyone wants to be on the Board but nobody wants to put any effort into the organization unless it will give him an entree into inside information. Certain concerns desire to dominate the organization but they are not willing to pool their interests unless they can control it.

The only way I see that much can be done is to secure an active manager who knows the score, who has unquestioned integrity, who will not play politics with one or two of the big fellows to the exclusion of the others and who is willing and able to talk frankly, require the West Coast Group to play ball just like everybody else. The man who takes the job should be in a position to be independent and threaten to quit if everybody doesn't cooperate.

The need for unity in the industry is greater now than it has ever been. I feel that if we do not have unity during the closing months of the war period, the industry may be held back seriously during the early days of the postwar period. We should now be together on postwar planning. We haven't taken any concerted action or stand on the war surpluses, the modification of CAA rules, airport development, feeder air mail, certification of Army fliers, etc.

Industry does need a vehicle and a voice to speak for it now, but I don't know how it is going to reconcile itself to a satisfactory answer unless someone like you could be induced to take on the job. I hope you continue to call a spade a spade in your magazine. Maybe you can drive them to some concerted action and sell them on trusting each other a little bit.

AN INDUSTRY EXECUTIVE.  
(Name withheld on request)

To the Editor:

I noticed with considerable interest the article in the Daily of January 4, 1944, entitled "Propose Postwar Aircraft Export Sales Corporation." (*American Aviation*, Jan. 15) After reading the article I simply passed it off as being another "bounce of the same old ball" but in the hands of someone else. The article in the Daily of April 6, 1944, entitled, "Aircraft Export Sales Corporation Plans Shaping Up," awakened me with a considerable start, and the realization that someone was seriously trying to make this plan work.

I am wondering what Mr. Knight's personal experience has been in the export field. As I recall, the original idea for such a plan was created by Mr. Leighton Rogers, back in 1935 or 1936, when Mr. Rogers was a member of the Export Division of the United States Chamber of Commerce. Due to bitter competition between American Aircraft Manufacturers for the coveted export business which at that time was in many instances the largest income they had, many bitter controversies arose which resulted in instances of the American manufacturer losing out to the British, French, and Italian competition. Mr. Rogers was given the job to work out a method to stabilize and protect the American Aircraft Exporters, and his plan was almost identical with Mr. Knight's, whereby the combine would insure getting business in proportionate share by a means of controlling prices and pooling orders.

Unfortunately, Mr. Rogers did not figure

on, and Mr. Knight evidently also does not, the American individual ambition and initiative and the healthy competition which is the backbone of American trade, or maybe Mr. Knight has some other method in mind.

I do not mean to say that the American export picture cannot be improved. It can, and it must, if we are to retain the markets that we had before the war and also those that have been opened to us as a result of the war. But I do not believe that the American manufacturers will ever allow themselves to be bound by such a combine of controlled sales for any great length of time. They may see in it a means of bridging the unknown gap which has been termed "reconversion period" between war and postwar. But so many factors, too numerous to mention at this time are against any combine of this kind, particularly where it must take into consideration the small manufacturers as well as the large ones. I personally feel that any such idea as proposed by Mr. Knight will not meet the success necessary to make it function in actual practice.

I believe the solution to the problem is one which must be conducted by our Government, by means of a change in policy of first, the State Department, and second, the United States Department of Commerce, whereby those two departments, which are both represented in all foreign fields can set up a common export policy of direct and active cooperation with representatives of the American Aircraft Manufacturers. It is a well known fact that the British, German, French, and Italian embassies and consulates acted as direct sales mediums for the benefits of their nationals in helping to arrange proper introductions to foreign Government and Industrial officials and to place official approval on Technical Data and other specifications so that one manufacturer could not take advantage, by over-representation of his product in competition, of another manufacturer of the same nationality.

If this policy of active cooperation can be established the benefits of aircraft manufacturers through the multitude of ways and means which are at the disposal of diplomatic and foreign trade offices would enhance and assure continuance of the aircraft export sales. True, the argument will come up concerning favoritism, but the possibility of this and the remedy for it, if it should exist, is a lot easier to correct in Government offices than it would be in an arrangement which certainly, common reasoning tells us, that the larger and more aggressive manufacturer, particularly one who has the most money to spend, would dominate any such combine as proposed by Mr. Knight.

I have been in the aircraft export business for some fifteen years, and I am quite prepared and willing to give concrete examples as proof of my arguments.

I repeat, that the solution for the future security of American Aviation Export must start within our own Government Departments with respect to their direct functioning and cooperation with American Aircraft Manufacturers.

Sincerely,

A. L. PATTERSON

To the Editor:

You made quite a contribution to European affairs in your April 15 editorial ("General Critchley's Generosity"). The Dutch will no doubt be surprised that you moved their capital from The Hague to Amsterdam. It may not be a major point with them right

## Obituaries

### Lt. Col. Thomas Hitchcock, Jr.

Lt. Col. Thomas Hitchcock Jr., 44, commercial aviation enthusiast and a veteran of two wars, was killed in an airplane crash at Salisbury, England, last fortnight. At the time of his death, he was head of the tactical research section of the Ninth Air Force Fighter Command.

Before entering military service, Col. Hitchcock was one of the founders and a director of American Export Airlines, and took an active part in the company's affairs. He was also a member of Lehman Brothers, investment bankers, and was well known throughout the aviation industry.

During World War I, when he was only 17, Hitchcock tried to enter the U. S. air forces, but was turned down because of age. However, he was accepted by the French army and became a member of the Lafayette Escadrille. After downing two German planes he was forced down in enemy territory and captured. While being transferred by train to a prison camp, he dived through the train window and made his way to Switzerland in eight days. He was invalidated out of the French Army and sent back home in 1918.

He entered the service again in 1941 as a major and was sent to London as assistant military attache in the American embassy. Later he returned to this country for combat training, following which he proceeded to England to command a Mustang fighter group.

Col. Hitchcock is survived by his widow, two sons and two daughters.

### Col. Lucius B. Manning

Col. Lucius B. Manning, 49, former president and chairman of the board of American Airways, predecessor of American Airlines, was killed April 9 in an airplane accident near Hartselle, Ala. He also was a director of the Aviation Corp., former president of Stinson Aircraft Co., former vice president of American Airlines and a director of Consolidated Aircraft. A veteran of the World War I Air Corps, Col. Manning recently was appointed commanding officer of the Third Air Force staging wing. He took over the presidency of American Airways in 1932 while a vice president of the Cord Corp., automobile and airplane manufacturers. He was a consistent advocate of the expansion of air power. In 1934, he advocated an immediate governmental aviation construction program to bring American military and commercial forces up to world parity. He said that 9,000 planes should be built, and insisted that the possibility of air invasion of the United States was "no myth."

now, but very likely will be in due course when the Netherlands is freed. Shame on you

GEORGE ROPER  
Aviation Division, State Department

(To State Departmentman Roper, an orchid for catching an A-1 boner. To herring-hating editor, a dried herring on cold toast.—Ed. Note.)



## Get This Free Booklet Describing Landing Facilities for Your Town

The river seaplane base, illustrated above, is one of several types of landing facilities illustrated and described in the new booklet, "What Your Town Needs for the Coming Air Age".

You, as an aviation enthusiast, realize the importance of landing facilities to the future of your town, its business enterprises and all its citizens. This new booklet, prepared to meet the increasing demand for information, will help you and your town officials in laying practical plans for your own landing area. You'll find it full of workable ideas, sound advice and logical thinking. Get your free copy now—show it to your town officials. Write Piper Aircraft Corporation, Department AA54W, Lock Haven, Pennsylvania.



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**ALSO GET YOUR AVIATION BOOKLET—"Piper Cub . . . In War and In Peace".** Full color, 32 pages. Covers history of light plane, Piper Cub planes, coming air age, how to fly. Enclose 10c in stamps or coin for postage-handling. Write Piper Aircraft Corporation, Department AA54, Lock Haven, Pennsylvania.

**16mm. SOUND FILM—"The Construction of a Light Airplane".** For distribution points write: Supervisor, Audio-Visual Aids, Extension Services, Pennsylvania State College, State College, Pennsylvania.

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# A Flying Fish made of STEEL!

"Flying fish" help today's airplanes to fly the skyways. An important landing gear part manufactured by Aircraft Mechanics, Inc. for cargo aircraft assembly, the "flying fish", has been so shop-termed because of its unusual shape. Actually, it is a fabricated alloy steel forging.

The more than fifty aircraft manufacturers we serve find that the drop forging technique used by Aircraft Mechanics, Inc. provides the stress and shock resisting qualities needed in forgings designed for modern airplanes.

Aircraft Mechanics, Inc. has served the aviation and other industries since 1932. Our welded tubular assemblies are precision built and our airforge parts have an extra margin of safety . . . higher stress and fatigue resistance . . . are more uniform in structure . . . and save priceless machining hours and critical materials.

Our engineers and laboratory technicians have solved many design, engineering, and manufacturing problems concerning the production of welded tubular assemblies and high tensile strength steel forgings. They will be glad to serve you, too, upon your request.

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\* **AIRCRAFT MECHANICS INC.**

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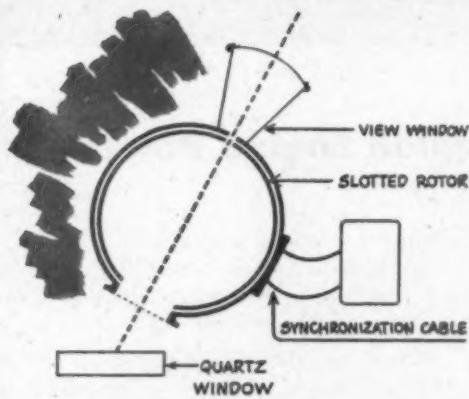
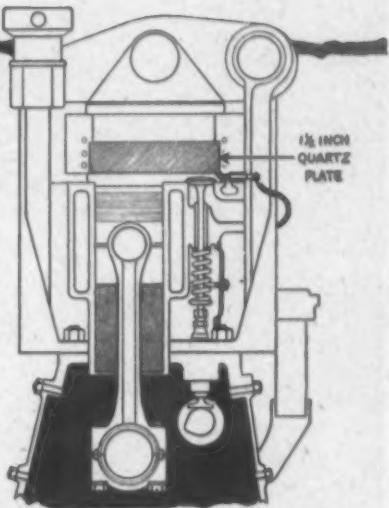
ARTHUR BRADLEY

**DESIGNERS ••• ENGINEERS ••• MANUFACTURERS**

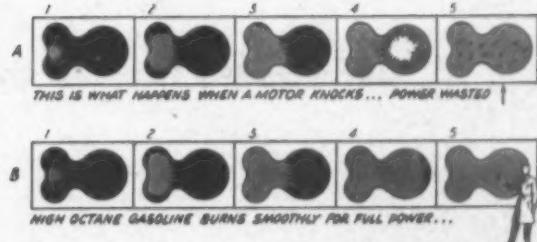


# How we "freeze" flames to make hot airplanes

**Aircraft engines** run on flames from ignited gasoline. And how the flames burn determines how efficiently the engine performs. If the air-fuel mixture in the combustion chamber burns evenly and smoothly, far greater "push" is exerted on the cylinders than if it explodes quickly and sharply. Taming these explosions in high-compression engines is largely a matter of controlling the detonation characteristics of fuels. To see these new fuels in action, to learn how to improve them, Standard of California scientists developed this engine. It has a quartz plate in the cylinder head so that the actual combustion of test gasolines can be studied.



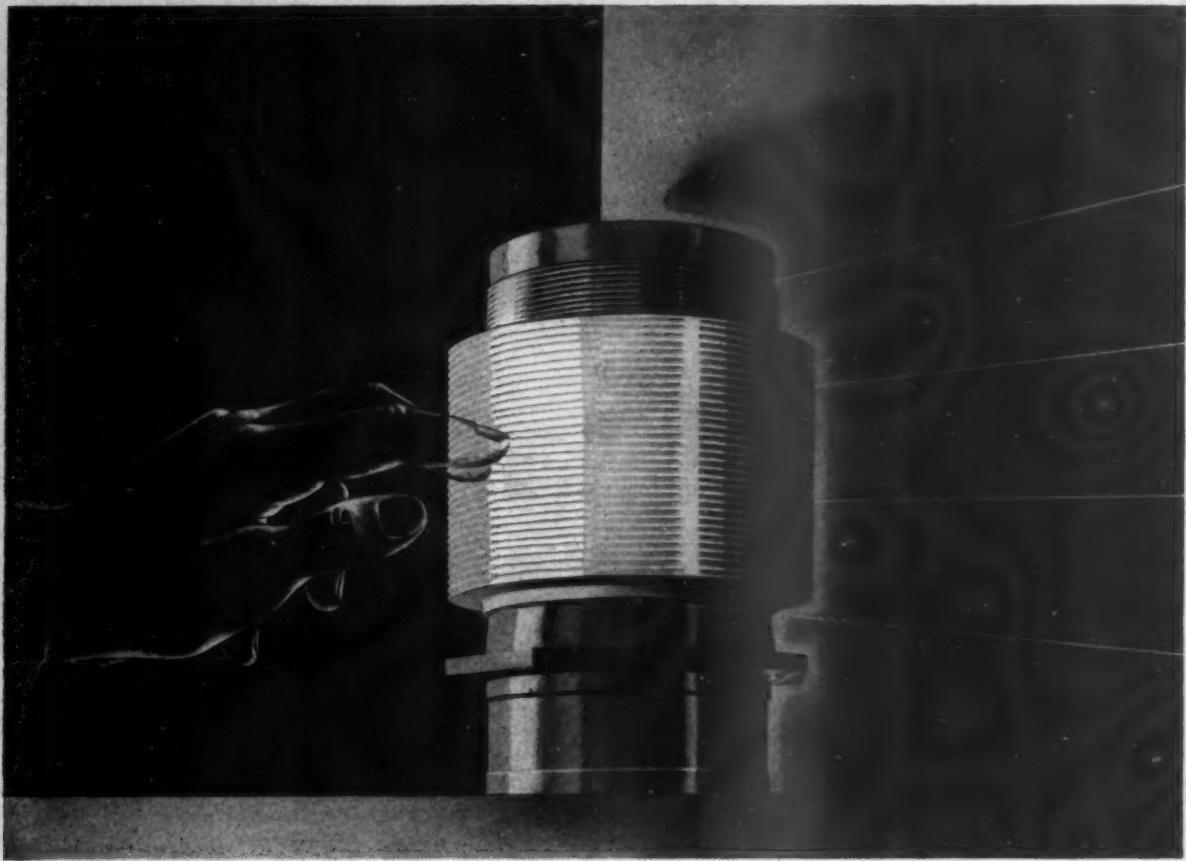
To "freeze" the flames, to apparently slow down the combustion process so that it can be studied, Standard scientists synchronized this stroboscope with the glass-topped engine. Through a slit in the stroboscope's whirling rotor one phase of the combustion process is viewed in successive explosions, giving the appearance of a continuous picture. Or it can be adjusted to follow the entire process like a slow-motion movie. Thus scientists can actually see how experimental fuels perform.



This is the biography of an explosion, what a Standard scientist sees through the stroboscope. Notice the violent explosion in frame A-4. This is knock, or detonation. Such violent explosions may dampen power, ruin engines. Equipment like the engine with the window in its head enables Standard scientists to improve aircraft fuels so that detonation can be avoided. With new Standard super fuels, flying combat teams get maximum speed and power from their motors—and designers can blueprint even more powerful and efficient engines for the sky giants of tomorrow.



**STANDARD OF CALIFORNIA**



## **Off Comes the Lid of Aircooled Engine Power**

A new and outstanding engineering development has come out of Fairchild's laboratories—a unique type of aircraft engine cylinder barrel that will enable American warplanes to fly farther, faster, and higher than ever before.

Heretofore, the power output of aircooled engines has been limited by the cooling capacity of fins tooled from the steel of the cylinder block—or of aluminum alloy fins merely shrunk on the cylinder barrel. The inefficiency of heat dissipation by these methods has long presented a problem for the best engineering minds of the world.

Now, by means of Fairchild's "Al-Fin" process\*, a solution has been found. This revolutionary development makes it possible chemically to bond pure aluminum fins to

the steel barrel to form an integral whole. The ferric-aluminum bond perfects the heat-conductivity at the point of contact. As a result, engine heat is drawn off much faster than by the methods previously employed.

Ranger 12s with "Al-Fin" cylinder barrels now produce more horsepower per pound of weight than other comparable engines.

The "Al-Fin" process is another example of the "touch of tomorrow" achieved by Fairchild engineering. A notable advance that helps build better warplanes today—as forerunners of better civilian planes tomorrow.

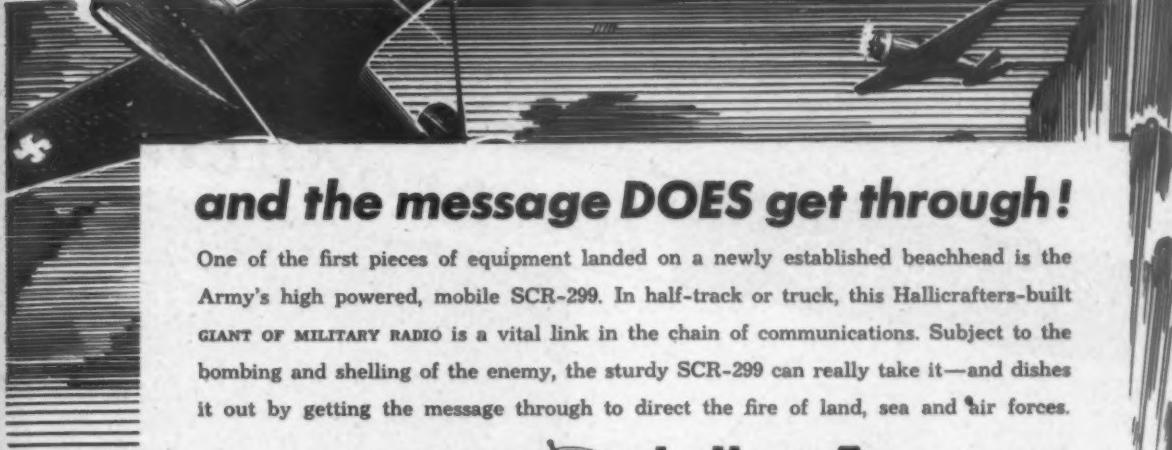
\*All rights to the process are vested in Al-Fin Corporation, a wholly-owned subsidiary of Fairchild Engine and Airplane Corporation, and are available, under license, to others.

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Division of Fairchild Engine and Airplane Corporation • Farmingdale, Long Island



## **and the message DOES get through!**

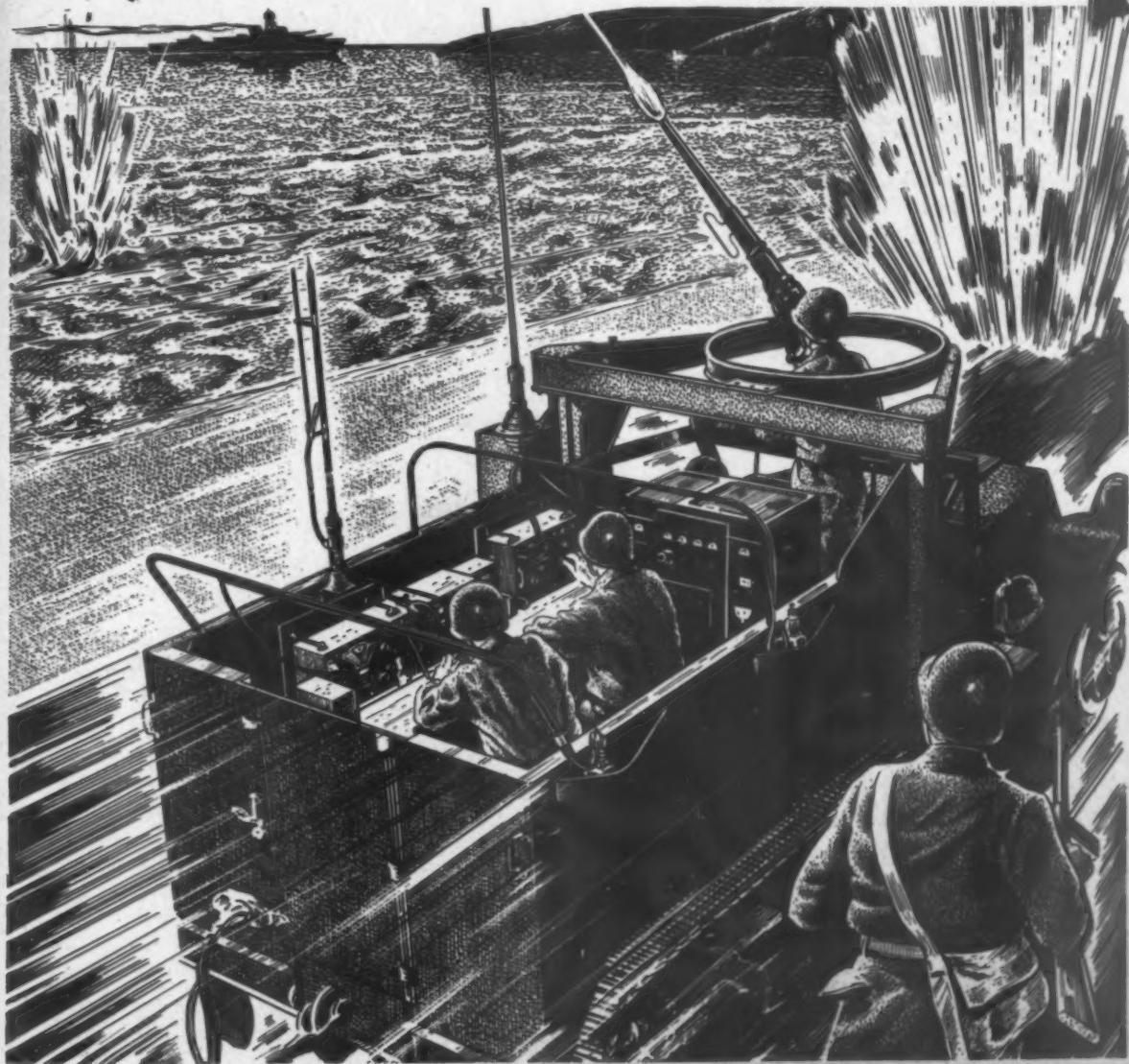
One of the first pieces of equipment landed on a newly established beachhead is the Army's high powered, mobile SCR-299. In half-track or truck, this Hallicrafters-built GIANT OF MILITARY RADIO is a vital link in the chain of communications. Subject to the bombing and shelling of the enemy, the sturdy SCR-299 can really take it—and dishes it out by getting the message through to direct the fire of land, sea and air forces.

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• 22 YEARS  
OF EXPERIENCE

## ACCA Creates Manufacturing Divisions

### Reorganization Starts at Harmonious Coast Meeting; Director to be Selected

TWO new regional manufacturing divisions of the Aeronautical Chamber of Commerce for the East and West Coast areas patterned closely after the streamlined and successful organization of the Aircraft War Production Council were created by the Aircraft Manufacturers of the United States as a climax to harmonious meetings in Los Angeles April 26.

The Chamber meetings held in conjunction with joint conferences of the East and West Coast AWP's, mark the beginning of full-fledged reorganization of the Chamber to make it the biggest force of the industry—an objective at which the manufacturers have aimed for many months. The existing committee set-ups in the Chamber will not be affected.

The two manufacturing divisions will direct policy matters in the overall program of the industry with special committees, such as one on Contract Termination, reporting to the manufacturing divisions. Presidents of major companies comprise the division organizations.

#### Woodhead Named

Heading the West Coast Division will be Harry Woodhead, president of Consolidated Vultee Corp., and serving with him are: J. H. Kindelberger, president of North American Aviation Inc.; Robert E. Gross, president of Lockheed Aircraft Corp.; T. Claude Ryan, president of Ryan Aeronautical Company; LaMotte Cohu, chairman of the board of Northrop Aircraft; P. G. Johnson, president of Boeing Airplane Co.; and Donald Douglas, president of Douglas Aircraft Co.

R. E. Gillmor, president of Sperry Corp. heads the East Coast Division. Serving with him will be: Glenn L. Martin, president of the Glenn L. Martin Co.; Carlton Ward, president of Fairchild Aircraft; Victor Emanuel, president of the Aviation Corp.; Alfred Marchev, president of Republic Aviation Corp.; E. R. Breech, president of Bendix Aviation Corp.; Lawrence D. Bell, president of Bell Aircraft Corp.; Eugene E. Wilson, president of United Aircraft Corp.; and C. J. Brukner, president and general manager of Waco Aircraft Co.

The executive committee of the Chamber headed by Eugene Wilson as chairman and Donald Douglas as vice chairman will spearhead policy development, including decision on a general manager for the Chamber. Further developments on special committee set-ups and final selection of a manager will result from groundwork made at the Los Angeles organizational meeting.

A broad public relations policy was

formulated at the meeting and it was agreed that ACCA would be used as an educational organization to acquaint the public with problems of the industry. Wilson declared at a press conference over which he presided that the "unity of the Chamber would never have been possible except for the Aircraft War Production Council."

The informational and educational program based on an airpower policy resolution adopted by the Chamber will be handled by the firm of Hill & Knowlton, with the firm of Lee & Losh, public relations counsellors of Los Angeles, directing public relations program for Hill & Knowlton on the West Coast. The resolution urged a permanent airpower policy to safeguard national security and assure world peace and prosperity. It includes maintenance of Army and Navy air forces at high strength and "acquisition and maintenance of air bases essential to our

#### President of NAWPC



Victor Emanuel, president of The Aviation Corp., who has been elected president of the National Aircraft War Production Council.

security and that of overseas trade." It urged the facilitating of orderly and economical expansion of domestic and international air transport and private flying.

James P. Murray, vice president and Washington representative of Boeing Aircraft Co., was re-elected president of the ACCA, and will continue as unsalaried head of the organization. Lawrence D. Bell and LaMotte Cohu were elected vice presidents.

#### Emanuel Elected

Victor Emanuel was elected president of the National AWPC, and J. H. Kindelberger, was named vice president. (Emanuel and Kindelberger are the new presidents of the East Coast and West Coast Councils, respectively.) Chosen directors of the National Council were Alfred Marchev, L. C. Goad, general manager of Eastern Aircraft Division of General Motors; P. G. Johnson, and Donald Douglas.

The new Board of Governors of the ACCA is composed of the following: Douglas, Kindelberger, Gross, Woodhead, Johnson, Ryan, Guy W. Vaughan, president, Curtiss-Wright Corp.; Wilson, Martin, Ward, Emanuel, Marchev, Breech, Gillmor, and Brukner.

Wilson was elected chairman of the ACCA executive committee, with Douglas as vice chairman. Also on the committee are Breech, Martin, and Johnson. Col. Harrison Brand and John E. P. Morgan were re-named secretary and treasurer, respectively.

A plan for disposal of surplus aircraft raw materials was discussed at the NAWPC meeting whereby basic materials in the hands of manufacturers will be funnelled back into normal wholesale channels. Col. E. W. Rawlings, Administrator of the Aircraft Scheduling Unit, described the system which will be administered by the Metals Reserve Corp. of Reconstruction Finance Corp. Details of the plan have not yet been determined. Henry W. Cornell of Metals Reserve told *American Aviation*, but his organization is working on it with ASU. He said the plan involved the distribution of surplus critical materials to private warehouses for resale.

It is understood that the plan would provide for an arrangement between aircraft contractors, RFC, and private warehouses. Contractors would turn over their surpluses to RFC on a consignment basis, and RFC would arrange for delivery of the material to the warehouses on a consignment basis. Manufacturers in need of critical materials would place orders with the warehouses in their area and would only buy through their regular channels if the warehouse could not fill the order. Warehouses are expected to make the materials ready for resale.

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# Pogue Urges Army to Return 100 Planes to Airlines

## Predicts That Many Route Applications Will Be Denied

**L.** WELCH POGUE, chairman of the Civil Aeronautics Board, has figuratively "picked up the ball" for the airlines by urging the Army to return immediately 100 transport planes for civilian transport use.

In a speech at the Las Vegas Aviada April 17, Pogue declared: "I urge a war measure—to provide a desperately needed 100 planes now for fast transportation needs. I urge a step to stop off-loading of millions of pieces of mail and thousands of passengers and I urge it at a time when our aircraft production has its second wind and is going strong. As a war measure I urge action."

This was the statement which the industry had been waiting to hear. Because of Pogue's position in the administrative and regulatory phase of the airport industry, it was felt his call upon the Army would carry considerable weight. His views re-echoed the many voices in the airline industry which have been heard in similar pleas to the military in recent months.

Pogue led up to this urgent plea by reviewing briefly the history of aviation, its accomplishments and its promises for the future.

"Right now," he stated, "the acute need is for the return to the airlines of a small amount of equipment. I have no disposition to claim knowledge of military requirements for cargo aircraft. I feel sure that there are no limits to the possible need."

Then the CAB chairman suggested there might be a comparable need, possibly a greater need as far as the war effort is concerned. This he said, was the need for speed in the handling of passengers and mail, all of which are dedicated to the successful prosecution of the war.

"I am sure that transportation of vital mail, passengers and property in this vast country of ours is an important part of our war program which we cannot neglect. This war is by no means won. Let no one relax in easy confidence. Let us rather redouble our efforts and speed. Speed is our ally—and that means, first and foremost, speed on our industrial front."

"The airlines have stepped up their utilization of aircraft beyond anything thought possible a few years ago. The approximate 200 aircraft of our domestic airlines are averaging well over 1,700 miles per aircraft per day—an amazing performance."

"It is to be hoped that a way may be found to permit the return of at least 100 planes to the air lines, which constitutes an infinitesimal fraction of our present annual production of cargo aircraft alone. The domestic airlines gave up 158 aircraft, leaving them with a total of 166 aircraft with which to carry on

their far-flung operations. About 35 have been returned," he said.

In the course of his speech, Pogue said aviation with electronics, plastics and other technological developments, would provide the new frontiers of civilization—the Californias, the Klondikes, the Nevadas of the future.

With regard to the expansion of trade and travel by air, Pogue pointed out that there are now about 50,000 miles of authorized routes in the United States and nearly 100,000 miles of international operations authorized to be conducted by U. S. air carriers, with another 10,000 miles of domestic routes authorized but not in operation because of the flight equipment shortage.

"There are on file approximately 600 applications for new routes," he said. "Of this total, nearly 500 applications relate to domestic service and involve approximately 500,000 route miles. By contrast, it might be of interest to point out that there are altogether about 230,000 route miles of railroads in the United States," he said.

The Board chairman stated that about 200 applications are now moving through

some phase of the administrative process. It was at this point that he injected a note of realism for the benefit of those aviation enthusiasts who apparently feel that air transport service is just around the corner for every town and hamlet in the country.

"It seems clear," Pogue stated "that if the mandate of the Civil Aeronautics Act, that broad charter of civil aviation, is properly carried out, and if sound air transportation systems are to be built up, many of these applications will have to be denied. I do not mean by that that the expansion will not be vigorous and large, but I do mean that it is of first importance to the nation to see that the expansion is a sound and healthy one."

The CAB chairman paid tribute to Senator Pat McCarran of Nevada and Rep. Clarence Lea, of California, for the part that they had played in obtaining the passage of the Civil Aeronautics Act. With reference to McCarran field at Las Vegas, Pogue said: "No airport in the development of our national aviation could carry a name more closely allied with aviation progress than the one I saw there—the name of your distinguished senior senator—Senator McCarran. He has been extremely active in national aviation legislation since being a member of the investigating committee on air mail contracts in 1934."

The Las Vegas Aviada was held to commemorate the 18th anniversary of the air mail service.

## Groundwork for Expansion of American Aviation Being Laid, says CAB Chairman

**VITAL TO THIS COUNTRY'S** world position in aviation and future commercial progress is a vigorous and continuing developmental program, backed by an informed public opinion, L. Welch Pogue, chairman of Civil Aeronautics Board, told aviation writers in Los Angeles following a two-day visit to Southern California aircraft plants.

"We need the cooperation of all concerned to work out a wise policy for continued and ever-expanded development work in aircraft," Pogue stated. "It will evolve around certain major factors, which include: how we handle surplus aircraft; keeping the public well informed on importance of continuing military development as well as commercial, and securing public support for our foreign air policy when the program is finally worked out."

In reply to a question by American Aviation as to when such a policy would evolve, Pogue remarked that groundwork for a healthy, vigorous expansion is being worked out.

"My personal opinion is that nations have got to keep control of rights to land and take passengers, although the right of free transit is perfectly sound, whether we have one international airline or many," he said.

Pogue named the thorough studies and investigations of the George committee in the Senate, the pending discussions on Sen. McCarran's bill and a decision on the American Airlines-American Export case as important factors in reaching an international policy.

Referring to his visits with engineers and manufacturers, he expressed interest in the general confidence of manufacturers

that from their war experience they will be able to get operating costs down to 15 cents a ton mile without any radical improvements to aircraft.

"Entirely guessing on my own, but basing my prediction on the planes and ideas put forth out here, I believe these costs will come down to five cents a ton mile within five years," Pogue estimated, adding that tendency pointed to smaller aircraft for frequent schedules.

He looks for express rates to scale downward from present 75 cents per ton mile to 35 and eventually 15 cents as compared with rail express rates of seven to 15 cents per mile. Passenger fares, he believes, will follow a curve of five to three to two and a half cents a passenger mile within a ten year period.

On the subject of feeder routes, Pogue stressed that Federal policy as to financial outlay would determine the number of routes to be granted. He said that the board hopes to issue a report on feeder routes within the next six to eight weeks. This report was described by Pogue as a "tough one to write because it is so important and has a lot of policy connected with it."

He pointed out that 500 applications for domestic service, representing 500,000 route miles, are before the board. This is in contrast with an existing mileage of 45,000, of which 10,000 miles are inoperative due to lack of equipment. Pogue added that all the nation's railroads represent 230,000 route miles.

On the foreign side of the ledger, there are 100 applications. Today's international mileage is 100,000 miles. Of the total 600 applications, 200 are "now in the mill"

# U. S. Airlines' Expenses Outgain Revenues

## Rate of Increase Varies Greatly Between Companies

By GERARD B. DOBBEN

**WARTIME OPERATIONS** have pushed the per plane-mile operating costs of the U. S. domestic airlines ahead more rapidly than per plane-mile revenues, according to a study made by *American Aviation*.

Civil Aeronautics Board figures reveal that while revenues for the industry as a whole for 1943 showed a 22.7% gain over 1942, expenses for the same comparative period increased 23.6%. While this in itself does not reflect an alarming trend, it is significant when viewed in the light of a comparison between 1942 and 1941 when revenues showed a gain of 34% and expenses increased only 9.3%.

A study of the accompanying table will show the wide disparity between the experience of the 18 domestic airlines. In some instances, expenses have increased at an alarming rate. Some of the carriers, fully cognizant of the trend, already have taken drastic steps to remedy the condition. One of the larger airlines is reported to have made a rather drastic cut in the number of its employees.

Dr. Lewis C. Sorrell, director of research, Air Transport Association, studied these figures briefly and outlined some of the possible reasons which undoubtedly enter into the rising expenses of the airline companies. He believes the disparity in the ratio of the increase of expenses to revenue between the individual airlines may be due to the difference in the spread of the overhead expenses against war contract operations and the difference

in plane utilization due to the effect of the war on revenue potentialities of specific carriers. He pointed out that some of the carriers, because of the regions in which they operate, undoubtedly have received a greater proportionate share of the increase in business due to the war than carriers operating in less vital areas.

Not more than one half of the total expense per plane mile could have been affected by the reduction in the average number of plane miles flown, Dr. Sorrell believes. Records show that the airlines flew 133,022,000 plane miles in 1941, 110,103,000 miles in 1942 and 103,607,000 in 1943. The reduction in plane miles flown, due entirely to the fact that the airlines were operating less planes in 1942 and 1943 than in 1941 has of course a direct bearing on the increase in the plane mile expense although this expense is offset considerably by the increased utilization of the airplane itself.

### Airline Cites the Times

Dr. Sorrell pointed out that one of the larger airlines, in its annual statement to stockholders, had mentioned greatly increased personnel turn-over, higher wages, higher taxes (state, local and personal) and contributions to national and local war charities as bearing directly on the increase in expenses.

Another point mentioned by Dr. Sorrell bore on the fact that most of the airlines have built up large technical and research staffs which are now principally engaged in preparing exhibits and data for hearings on new or amended route applications. The cost of maintaining these staffs of experts is a current expense. The financial return which may be realized from their work, through the granting of new revenue producing air routes, is something that may or may not show up on the credit side of the ledger later.

The financial data on per plane mile expense and revenue follows:

### ATA Reports Big Gains In U. S. Airline Operations

Sharp gains in first quarter operations of the domestic airlines are announced by Col. Edgar S. Gorrell, president of the Air Transport Association of America.

Revenue passenger-miles during the first three months of 1944 are estimated to exceed 465½ million, an increase of about 40% over the first quarter a year ago, when a total of 331,273,751 revenue passenger-miles were reported.

Mail pound-miles are estimated at 22½ billion, as compared with 15,058,722,057 in the first three months of last year, a gain of around 50%. Mail pounds carried jumped to more than 36 million in the first quarter from 23,618,983 in the like period a year ago.

Express pound-miles flown by the domestic carriers in the first three months were up more than 40% to 9½ billion, while express pounds carried increased about 51% to more than 19½ million in the 1943 first quarter. These items were 6,690,096,391 and 12,582,471, respectively, in the comparable 1943 period.

The first quarter traffic figures of the domestic airlines, as compared with the same period a year ago, follow:

	First Quarter 1944	First Quarter 1943
Revenue Passenger Miles .....	465,500,000	331,273,751
Mail Pound-Miles .....	22,500,000,000	15,058,722,057
Mail Pounds Carried .....	36,000,000	23,618,983
Express Pound-Miles .....	9,500,000,000	6,690,096,391
Express Pounds Carried .....	19,500,000	12,582,471

## Air Carrier Revenue and Expenses in Cents Per Airplane Mile

Carrier	1941		1942		1943		Percent of change in Revenue 1942 over 1941	Percent of change in Expense 1942 over 1941	Percent of change in Revenue 1943 over 1942	Percent of change in Expense 1943 over 1942
	Revenue	Expense	Revenue	Expense	Revenue	Expense				
INDUSTRY (As a Whole) .....	72.08	66.59	96.64	72.81	118.57	90.00*	34.	9.3	22.7	23.6
ALL AMERICAN AVIATION .....	44.86	44.40	51.97	50.36	53.19	50.64	15.8	13.4	2.3	0.5
AMERICAN AIRLINES, INC. ....	81.92	70.00	96.88	76.73	119.15	87.08	18.2	9.6	22.9	13.4
BRANIFF AIRWAYS, INC. ....	60.67	61.98	87.81	65.52	124.70	87.29	44.7	5.7	42.	33.2
CHICAGO & SOUTHERN .....	74.37	72.74	95.12	74.96	104.08	102.95	27.9	3.0	9.4	37.3
COLONIAL AIRLINES, INC. ....	105.31	95.79	117.19	116.60	113.93	119.07*	11.2	21.7	-2.78	2.11
CONTINENTAL AIRLINES, INC. ....	53.22	56.27	75.46	60.13	88.88	79.24	41.7	6.8	17.7	31.7
DELTIA AIR CORPORATION .....	55.15	52.04	92.03	68.53	115.71	94.57	66.8	31.6	25.7	37.9
EASTERN AIR LINES, INC. ....	68.82	56.26	94.40	60.31	119.27	82.41*	37.1	7.19	26.1	36.6
HAWAIIAN AIRLINES, LTD. ....	107.99	93.36	201.40	113.57	177.30	130.12	86.5	21.6	-41.9	14.5
INLAND AIR LINES, INC. ....	46.57	47.19	53.87	55.17	62.69	61.19*	15.6	16.9	16.3	10.9
MID-CONTINENT AIRLINES, INC. ....	54.80	62.88	64.09	59.98	76.61	60.71*	16.9	-4.6	19.5	1.2
NATIONAL AIRLINES, INC. ....	49.47	48.24	79.23	51.61	86.26	74.83*	60.1	7.0	8.8	44.9
NORTHEAST AIRLINES, INC. ....	61.82	69.29	86.76	81.11	116.16	120.49*	40.3	17.0	33.8	48.5
NORTHWEST AIRLINES, INC. ....	74.75	67.53	97.64	83.33	116.63	88.10*	30.6	23.3	19.4	5.7
PENNSYLVANIA-CENTRAL AIRLINES CORP. ....	74.93	70.88	90.16	90.74	126.39	112.35	31.0	26.0	28.7	23.8
TWA .....	71.48	74.27	95.17	75.01	117.84	97.53	33.1	1.0	23.8	30.0
UNITED AIR LINES, INC. ....	71.43	67.54	106.14	81.34	125.94	92.84	48.5	20.4	18.6	14.1
WESTERN AIR LINES, INC. ....	63.62	64.54	102.46	74.25	105.06	99.88	61.0	15.0	2.5	34.5

\* For 12 months ended Nov. 30, 1943

Figures do not include war contract revenues nor adjustment for Federal Income and Excess Profits taxes.

Source of figures for Revenue and Expense per airplane mile: Civil Aeronautics Board

# 'Make Planes Safe; Don't Rely On Pilot's Skill'—Geisse

**I**F THE PRIVATE plane manufacturer is to realize fully the potential business in the postwar market, he must change his thinking toward improving plane design, simplifying its handling, and reducing its cost of operation, in the opinion of J. H. Geisse, Research Consultant for the Civil Aeronautics Administration. Geisse spoke before the National Light Aircraft meeting of the Institute of Aeronautical Sciences in Detroit April 27.

Based on a survey which he made in 1940, Geisse said that approximately one-third of all the private plane owners continued ownership for one year or less and another 22% continued ownership for two years.

"The study indicated that in the years of 1931 to 1936, inclusive, there were approximately 15,000 new owners recorded with a net gain in the total number of owners in this period of 200," Geisse stated.

Questionnaires which Geisse sent to private owners revealed that 50% gave up ownership because of reasons of cost. Results of a student pilot survey similarly revealed that 50% gave up flying because of financial reasons and that excluding the 28% who expected to fly commercially, 50% wanted to fly just for the pleasure of flying.

After discussing high insurance costs based on accident experience, Geisse said it should be noted that the reduction in cost per mile which might be accomplished for the private owner flying 100 hours per year by adjustment of the rates on the basis of present safety records would be only \$.016 whereas a reduction of \$.051 could be obtained if the safety of operation of the airplane could be made comparable to the safety of operation of the automobile.

Even if the cost of the plane were doubled, from \$2,000 to \$4,000 and it was possible to apply automobile insurance rates, the cost of operation per mile would

be less than for insurance rates adjusted to present safety standards, Geisse stated.

"The hazards of flying are also indirectly responsible for two other items of sales resistance" he said. "The first you are familiar with. It is the cost in time and money to learn how to fly. The second has probably escaped your attention. The extent of Federal Regulation of private flying is occasioned primarily by the hazards of this activity. In a way it might be said that we have tried to provide safety in private flying by regulation rather than by development of the private airplane.

"Instead of demanding safety of the airplane in the hands of the relatively unskilled pilot we have progressively demanded more skill and experience from the pilot and surrounded him with evermore restrictions on what airplanes he could fly and when he could fly them. Instead of building the airplane so that it could be safely repaired by any reasonably skilled mechanic we have required that they be maintained and repaired only by especially qualified personnel certificated by the government," Geisse declared.

He revealed that CAA had found that the time required for pilot certification in a ship of the Ercoupe class, with its manual controls, was reduced from 35 to 25 hours and the time required before the first solo flight was reduced from eight hours to five hours.

Improved instrumentation, readily accessible landing strips along highways suitable for planes with tricycle landing gear, shock absorbing wings and the inherent advantages that a roadable plane would have over the conventional types were all touched upon in relation to the utility and safety factors.

"Roadable airplanes do offer a partial answer to the problem of weather interruption for the private pilot . . . the roadable feature would permit private

pilots to assay flights which they could not make otherwise for fear that they might be forced down and be unable to complete their trip. In the event that such trips are attempted and the weather does become such that the trip can not be continued by air it can be continued by highway and the difference in time is measured by the difference in air speed and road speed and not by the duration of the bad weather," Geisse pointed out.

"Weather interruption is also solved in the proposed 'Fly It Yourself' systems . . . It is proposed that airplanes rented at any one station in the system may be turned in at any other station in the system. In some cases it is also proposed that automobiles as well as airplanes will be rented," he observed.

## Aviation Calendar

May 1-3—Third Wartime Aviation Planning Conference, A. & M. College of Texas, College Station, Tex.

May 2—International air transport operators' meeting in London.

May 2-3—National Conference on Aviation, Aeronautical Institute of Canada, Toronto.

May 8—National Aeronautic Association, meeting Board of Directors, Washington.

May 8-9—Executive Committee for Second Annual Clinic of Domestic Aviation Planning at Oklahoma City meets in Washington.

May 12—State Aeronautics Commission and Planning and Development Commission of New Hampshire, joint meeting in Concord.

May 12—Maryland aviation conference, Emerson Hotel, Baltimore.

May 15-16—South Dakota Airport Planning Conference, Huron.

May 17-18—Society of Automotive Engineers national Diesel fuels and lubricants meeting, Hotel Knickerbocker, Chicago.

May 23-24—Aeronautical Training Society, annual convention, Roosevelt Hotel, New Orleans.

June 17—Meeting steering committee, Airworthiness Requirements Committee of ACCA, at Douglas Aircraft Co., Santa Monica.

June 23-24—Meeting of officers and directors, Aviation Distributors and Manufacturers Association, Edgewater Beach Hotel, Chicago.

July 10-12—American Association of Airport Executives, annual meeting, Sherman Hotel, Chicago.

July 17-18—Air Traffic Conference regular meeting, Denver.

Aug. 1-2—Eastern Division meeting, Airworthiness Requirements Committee, New York; Western Division meeting, Los Angeles.

Aug. 2-3—National Business meeting, National Aeronautics Association, Denver.

Oct. 5-7—SAE National Aircraft Engineering and Production meeting and engineering display, Biltmore Hotel, Los Angeles.

Nov. 15-18—Second National Aviation Planning Clinic, Oklahoma City.

Dec. 4-6—SAE National Air Cargo Meeting, Hotel Knickerbocker, Chicago.

Jan. 8-12—1945 SAE Annual Meeting and engineering display, Book-Cadillac Hotel, Detroit.

## Latest Version of P-51 Mustang



This new version of the North American P-51 has added firepower and a new 'teardrop' cockpit enclosure affording the pilot complete vision in all directions. The latter is an aid to night flying as well as daylight combat, since it can be rolled back to give a view of the surrounding sky unhindered by light reflections from the instrument panel. The plane has six .50 calibre machine guns and a tactical radius of more than 600 miles.

# Lord Grimthorpe to Preside at International Air Meeting

THE PRIVATELY-SPONSORED meeting of international air transport operators, scheduled to open in London on May 2, will be presided over by Lord Grimthorpe, chairman of North Eastern Airways Ltd. since the company's formation in 1915, it is learned from London. The meeting was called by North Eastern.

Lord Grimthorpe, a British lieutenant colonel, has been granted special leave from his Allied Military Government post in Italy. He has been active in British aviation since World War I and is former chairman of Airspeed Ltd. The fact that

he was granted leave from a key job in Italy is interpreted in some quarters as giving some sort of official approval to the meeting.

The following companies have stated that they will attend the meeting: American Export Airlines, Det Norske Luftfartselskap, Sabena, Air France, Ceskoslovenska Spolecnost, Ceskoslovenska Statni Aerolinie, Det Danske Luftfartselskab, Royal Norwegian Air Transport, Wrightways Ltd., Air Dispatch, Portsmouth Aviation, Svenska Aero Lloyd (a steamship company participating in SILA, Swedish Intercontinental Air Lines), and North Eastern. The Greeks and the Poles were expected to accept as this issue went to press, and KLM was still in doubt.

British Overseas Airways, Trans-Canada Air Lines and the British Railway Air Services have refused to attend.

## ADMA Officers to Meet

Mid-year meeting of the officers and directors of Aviation Distributors and Manufacturers Association will be held at the Edgewater Hotel, Chicago, Ill., on Friday and Saturday, June 23 and 24.

## Spitfire Mark XII Powered by Griffin

A previous announcement by the British Air Ministry that a Spitfire model was being powered by a new Rolls Royce Griffin engine, displacing the Merlin, was amplified last week with the disclosure that the Spitfire powered by the Griffin is the new Mark XII.

The Griffin has been described as having 12 cylinders developing greater horsepower, some accounts say 23% more, than the 1,500 hp. Merlin. It is equipped with a two-speed mechanically driven supercharger.

The Spitfire Mark XII is featured as an improved single-seater fighter with much greater maneuverability, increased speed and rate of climb at low altitudes.

During the two years that the plane and engine were in development, acute problems of design had to be mastered, Supermarine, the plane's builders explain. The substantially increased size and weight of the new engine in comparison with the Merlin necessitated modifications to many sections of the aircraft.

A new fuselage, reinforced and strengthened to support the heavier engine was designed and an entirely new type of engine mounting introduced. Clipped wings were substituted for the standard type and an improved rudder installed. The lines of the cowling had to be modified to provide a better aerodynamic form, and the fixed tail wheel was replaced by the latest retractable type.

Now in full operation by the RAF, the new "Spit" Mark XII is claimed to have proven highly successful.

## Navy Sets Up Pre-Combat Liberator Training Center

Expansion of the Navy's program for land-based Liberators has led to the selection of a special school to train the pilots and air crewmen in the operational phase as combat teams. On April 27, the Naval Air Station at Hutchinson, Kan., formerly a primary school, was inaugurated as the Liberator training center.

Under the direction of Commander William C. King, U.S.N.R., pilots and crews will go through final phases of operational training before proceeding directly to combat areas.

Wilson at Chance Vought



Charles E. Wilson, left, vice-chairman of the War Production Board, is shown as he toured the Chance Vought Aircraft plant recently with Rex B. Beisel, general manager. He praised the 'on schedule' production of F4U-1 Corsair fighters for the Navy.

## North Atlantic Airline Planned by International Interests

ANNOUNCEMENT last month that "important interests" in Canada, the U.S. and Great Britain will join with a Newfoundland group "in the establishment and operation of North Atlantic air services, based on Newfoundland, between Canada, Newfoundland, United States, Great Britain and Europe," has aroused interest in Washington, but because information on the proposal is sketchy, most officials are non-committal.

The announcement was made in New York by V. S. Bennett, Newfoundland businessman, who disclosed that the airline has been incorporated in Newfoundland under the name of Air Transport Limited, which it is proposed to change to North Atlantic Airways.

It was revealed that U. S. representation in the project will be headed by Smith, Barney & Co., New York investment bankers who have participated in financing of U. S. airlines, while Canadian representation will be by Greenshields & Co. Inc., of Montreal, which has financed Canadian lines. British interests were not revealed.

The airline, "subject to the consent and approval of the Newfoundland Government and of other governments . . . plans to operate, over the favored short North Atlantic routes, fast, specially-equipped aircraft on the routes connecting Great Britain and the North American and European mainlands," according to Bennett, who initiated the project.

The project, said to be the first of its kind to be undertaken with backing of Canadian, American and British capital, will operate under Newfoundland laws and regulations, "which fact is expected to greatly facilitate fruition of the project."

The board of directors will be composed of Newfoundland, Canadian, American and British interests, and the Newfoundland Government will be invited to have a representative on the board. "The company has under consideration methods whereby other countries may have an opportunity of participating in the organization. This would tend to strengthen it politically as regards the international character of its ownership and operations," the Bennett announcement said.

Application is being made immediately to Newfoundland for landing and navigational rights and rights to the use of other transport facilities now existing or projected, and for reciprocal rights in those countries which may be accorded similar facilities in Newfoundland or Labrador, it was said. Bennett expressed the belief that "only by a strong company with international support of this kind would Newfoundland be able to enjoy the full economic benefits to which it is entitled by virtue of its geographical position on the important world air routes." The Newfoundland and Labrador territory "sits astride of any North Atlantic air routes connecting important points of the new and old worlds," it was pointed out.

Bennett is a representative in Newfoundland for Shell Oil Co., and a local director of the Anglo-Newfoundland Development Co., a Rothermere enterprise. He is the son of the late Sir John Bennett, who was Colonial Secretary in the Newfoundland Government for many years.

Washington officials professed to know nothing about the company and were withholding comment. The State Department has not been consulted and U. S. landing rights have not been requested.

# Canada Seen as America's 'Friend' at London Meeting

By AUSTIN F. CROSS

OF FAR-REACHING consequence to future air control is the Imperial Conference now convening in London, and to no country on this globe is it more important than the United States. Here the Empire is putting its house in order, and in doing so, it is straightening out its air policy. In all this spectacular representation of Empire prestige, and Empire power, where does Uncle Sam come in?

For the past 150 years or so, the United States has not had to worry the slightest what anybody else was doing. Nor need Americans care what other countries' policies were. Today however, the magic of airpower has stitched together the world so that continents are closer than counties were a hundred years ago, and what London decides might make or break an airline.

The main question is, how will the United States come out of all this? The answer is, that she will come out all right. She will emerge in this fashion because the policies of Premier Mackenzie King of Canada are going to be heard, and accepted, at this imperial air conference.

## Halifax Sounds Rallying Cry

Now let us go back a minute, and look at two very significant events. The first one took place at Toronto, about three months ago, when Lord Halifax, British ambassador to the United States, came out flat-footedly, in a very brilliant speech, for all the dominions and units of the British Commonwealth of Nations to rally round the Motherland. It was a new version of imperialism. To some, it was the old Kiplingesque jingoism come to life again.

What would King do about this, Canadians wondered? They did not need to wonder long. He got up in the House of Commons and said that Canada had commitments to Great Britain which she would keep. Then he went on. Mr. King pointed out that Canada also had commitments to the United States. These American commitments, too, Canada would keep. Then he removed the velvet glove ever so slightly and revealed the iron hand underneath.

If, he said, in effect, anybody wanted to fight an election on that, they could. King of course scored a notable triumph in 1926 on imperialism versus self-determination, and he was ready last February to try again. To make a long story short, his opposition didn't want to fight King on this. Canada, then, was plugging for self-determination. She was not going to rally round the Mother country, and accept one common Empire policy. In other words, Canada was not going to toss in her lot with Britain, or Australia,

to present a common front to the world. She would consider Empire questions on their merits, and she would also deal with American questions as she saw them from Ottawa, and not as the Empire authorities saw them from London.

Now then, the scene shifted to London. There were in the British House, what might be called the centralists, or imperialists, and the self-determinationists. Many of the old guard liked the idea of a common voice for the Empire, and it is said that Churchill's voice was among them. Others liked the idea of each dominion running its own show, and Eden's voice was reputed to be one of those. When the British cabinet's brain-trusting scuffle was over, the self-determinationists had won the day.

Now who is the outstanding self-determinationist in the Empire? Premier King. King has always believed in the invisible boundary line.

Now, when he goes to London, his policies are going to prevail. Opposition in the British cabinet has been snuffed out. There remain no Empire premiers who can stand up to Canada's long-time, five-term, prime minister. Since it is known that King is going to get his way, it seems that three facts of interest to air-minded Americans stand out. They might be listed as follows:

1. Canada's airports and facilities will be available to American intercontinental lines.
2. The "all-red route" will be frowned on, thus making it possible for Americans to compete more freely around the world.
3. Private enterprise will not be chased away by government-owned lines.

In the case of the first point, Canada will control her own air policy, instead of it being part of somebody else's policy. That means that American airlines will be able to come into Canada freely, and use the northern airports en route to Asia or Europe. (Always assuming that Canada gets some sort of reciprocity, where she wants it.) In the future, it is going to be very important for American lines to be able to get into Canada, and not be squeezed out by some Empire monopoly.

Next, the all-red route is "out." That means that instead of a powerful all-imperial plan system using Canada as a way station, Canada likely will have her own transcontinental system. This would likely permit American planes to enter the Dominion under more friendly terms than an Empire monopoly would. Again, if there was an all-red route, this would be a very powerful airline for Americans to compete against. If there is no such all-red route, then Americans are that much stronger. Fighting the British Empire in the airlines would be a tall chore, if a super-powerful Imperial Airline monopoly were lined up.

Lastly, an all-red route would be a government route. That would commit

## Disposition of Permanent Fixtures at U. S.-Built Bases 'Has Implications'

The disposition of permanent installations on American-built airfields outside the United States has "far-reaching implications," Howard P. Whidden, Jr., economist for the Foreign Policy Association recently declared.

"Disposition of these installations leads directly to the problem of what regime will govern the postwar operation of international air transport," he said. "The United States cannot expect landing rights on every field that has been built with American funds without making at least some bilateral arrangements or adhering to multilateral agreements establishing principle such as freedom of air transit."

In either instance, he suggested, permanent installations might be paid for in cash by the country possessing sovereignty, or in relaxation of landing fees for United States carriers during a period of year-

the north half of the North American continent to public ownership of airplane lines. But if Canada keeps her own system, even if some of it, or perhaps, the major part of it, is government-owned, then it would not be such a cut and dried system, such a powerful organization, as something run by the Empire. In word, things would be more free and easy for American aviation under a purely Canadian regime, than under an all-powerful, globe-girdling, imperial regime.

Premier King stands above all for cordial relationships with the United States. He sees nothing wrong in being friendly to the States as well as the British Empire. Canada's attitude toward the Empire has been impeccable, with her armed support, her munitions, her gifts of billions. But she likes the States too. Just as a man can be both a Baptist and a Kiwanian, so does Mr. King feel Canada can be both British and American. And she is. This sentiment he will transmit to the Imperial Conference. Meantime Churchill and Smuts and Curtin and Fraser and the rest of them are all going to hear that from Mr. King in no uncertain terms. And there is nothing they can do about it. The United States is going to have a real friend at the Imperial Conference.

## Policies 'Good for Canada'

But mark this; she is going to have a friend, not because what Mr. King wants to do is good for the United States. The United States is going to have a friend at London because what Mr. King wants to do is good for Canada.

Air policy will be settled, as far as it can be settled. Broad principles will be laid down, and as far as possible, commitments along these lines made. Canada has already suggested a world commission to run the air. In thinking about air problems, this country is as advanced as any other country in the world.

The idea is not to let the United States run Canada, in the air, nor walk over Canada. The basic theme is common sense. You can't overlook a country as big as the United States, nor as important.

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sponse to instructions to the master valve irrespective of altitude, temperature, vibration or pressure fluctuations. Operates independently of main hydraulic system. Available with or without positive integral locks. Ask for brochure on \*ISOdraulic Controls for aircraft, marine, industrial applications.

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ILLUSTRATION EMERSON ELECTRIC NOSE TURRET ON A B24 LIBERATOR BOMBER  
(Photo Illustration courtesy Michigan Seamless Tube Co.)

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# TWA's Constellation Flies Burbank-Washington in 6:57

BREAKING ALL previous records, TWA's Constellation landed at Washington National Airport on Apr. 17 after a non-stop 2,400-mile flight of six hours, 57 minutes and 51 seconds from Lockheed Air Terminal, Burbank, Calif.

At the controls were the two men who first planned the Lockheed-built four-engined planes—Howard Hughes, president of Hughes Tool Co., largest TWA stockholder, and holder of previous speed records, and Jack Frye, president of TWA. Hughes handled the ship on take-off and flew half way across the country, where Frye took over for the remainder of the flight and the landing.

Frye said at a press conference the next day that he was "hopeful" of getting some of the ships for commercial service possibly as early as the first part of next year.

On Jan. 19, 1937, Howard Hughes established a non-stop cross-country record by flying from Burbank to Newark in seven hours and 28 minutes. He used a specially-designed single-place ship, whereas the Constellation carried 17 persons on its record flight and will eventually have accommodations for 64 passengers.

The fastest Los Angeles-Washington transport flight was made on Feb. 20, 1935, when Leland S. Andrews and H. B. Snead flew a Vultee across in 10 hours, 22 minutes.

## Turned Over to Army

The TWA Constellation is now being turned over to the Army. Army officials refused to permit Hughes or Frye to reveal any performance details of the ship on the grounds of military security. Frye was permitted to say that most of the trip was made at between 17,500 and 19,000 feet. When over Cincinnati, he started to let down for Washington which, he said, was a "mistake," because headwinds were encountered which slowed their progress. Frye said the Constellation "flies and handles like a pursuit."

At his press conference, Frye said that the U. S. is just at the "beginning of the development of large airplanes," and he predicted that within 10 years the Constellation "will be looked upon as a small airplane among the large airplanes." He hesitated to predict how many of the Constellations TWA would need for domestic service, pointing out that the company had originally ordered 10 Douglas planes ("a big order") but subsequently bought 40 and still did not have enough. He indicated, however, that TWA would take delivery as quickly as possible of the 40 Constellations originally ordered.

At present, Frye stated, the plan is to carry, in commercial operations, 64 passengers plus crew. He pointed out that if the same seats were used as are now used in the DC-3, and each passenger were

given the same amount of room, the Constellation would carry over 80.

Because of the ship's speed, Frye does not believe that sleeping accommodations will be necessary. He predicted a non-stop transcontinental service, which would be economical if an extra fare were charged, leaving New York at 5 p.m., arriving on the west coast at midnight (local times).

## Solomon a Passenger

Samuel J. Solomon, chairman of the Airline Committee for U. S. Air Policy, was one of the passengers on the record-breaking flight. Making the flight for TWA were L. J. Chiappino, test pilot; Richard de Campo, flight engineer; C. E. Glover, radio operator; R. L. Procter, flight engineer; E. T. Bolton, navigator; R. C. Loomis, engineering representative; O. R. Olson, test pilot; Lee Spurill, Burbank resident engineer; E. J. Misner, meteorol-

Progress

News item, 1944—TWA Constellation arrives in Washington after record-breaking non-stop flight from Burbank, Calif., of six hours, 57 minutes and 51 seconds.

News item, 1929—"In the near future we shall undoubtedly have transcontinental (air) service which will carry us from coast-to-coast in 34 hours" (From the Air Commerce Bulletin, Dec. 2, 1929, publication of the Aeronautics Branch of the Department of Commerce.)

ogist, and Leo Baron, director of public information.

Aboard from Lockheed were R. L. Thoren, chief flight test engineer; Richard Stanton, flight engineer, and Thomas Watkins, service representative. Lt. Col. C. A. Shoop, assistant AAF representative at Lockheed, was aboard for the Army.

## TWA Official Sees Airlines Entering Market Served By Railroad Coaches and Buses

The nation's airlines after the war will enter the mass transportation market now served by buses and railroad coach trains, and ultimately can expect to carry a heavy share of all passenger travel, V. P. Conroy, traffic vice president of Transcontinental and Western Air, recently told the Pittsburgh Rotary Club.

Conroy said that manufacturers have plans for new airplanes, to be designed and put into use within five years after the war, which will enable the airlines to compete on a price basis with all present forms and classes of transportation. This will also apply to many classes of cargo business, he said.

Conroy declared there are transport planes already built which are capable of "creating a whole new world in the air age, which will follow the end of the war." One of these planes is the new Lockheed 57-passenger Constellation, he said.

This new plane is the next step in improving the airlines' present first-class travel service, according to Conroy. He said that up to now the airlines have competed only with the Pullman class of surface transportation, with rates of about 5 cents a passenger-mile. However, the bulk of all travel is in the so-called intermediary class served by coach trains and buses at rates of 1½ to 2½ cents a mile, he pointed out.

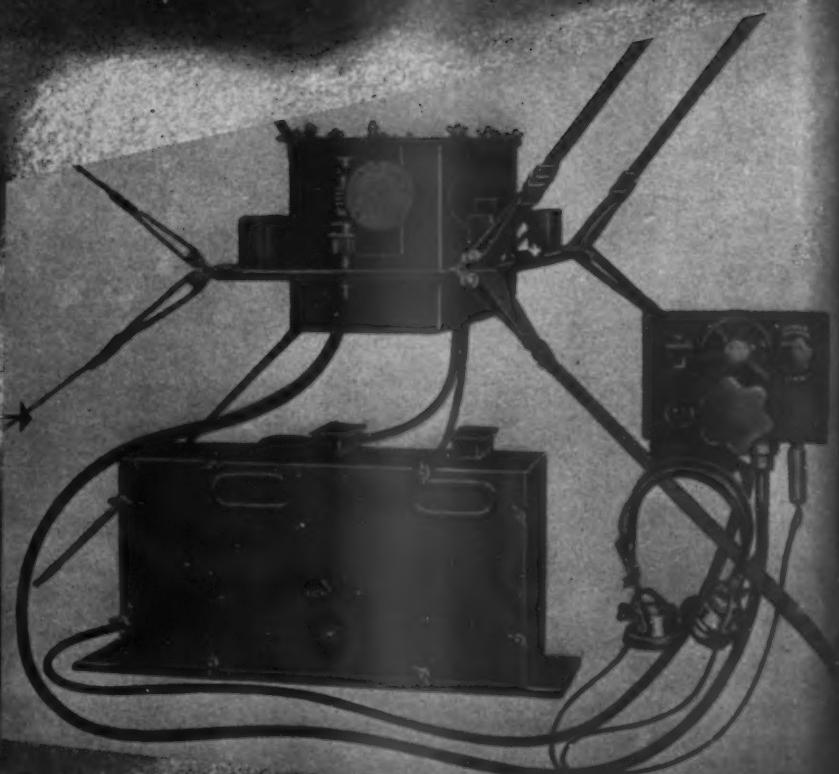


First two men out of TWA's Constellation Apr. 17 when the big plane came to rest at Washington National Airport after a non-stop record-breaking flight from Lockheed Air Terminal, Burbank, Cal., were Howard Hughes (left), president of Hughes Tool Co., and Jack Frye, TWA president. Hughes and Frye, who worked together on the original idea for the ship, flew it across the country.



The Constellation lands at Washington National Airport

1930  
1944



## 14 YEARS OF

**I**N 1930 airplanes were "crates." Wire, cloth, slats. Mostly biplane. Wonderful, but fearful. Compare these old machines with the streamlined, compact safety models of today.

Year by year aviation radio has kept pace. Matched progress. Produced RCA aircraft radio that is lighter, that does more, that is more dependable.

For example, shown at the upper left is an RCA aircraft receiver of 1930. The equivalent RCA 1944 equipment is less than one-eighth as bulky and one-fifth as heavy. Yet it does a far better job and provides two frequency ranges (550 to 1500 kc. and 195 to 450 kc.), instead of the one range available with the 1930 apparatus.

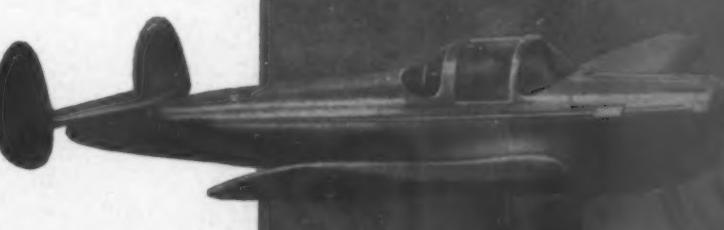
This is a typical example of RCA initiative and ability

**LOW**



## AVIATION RADIO

in developing improved radio equipment. In the years to come this progress will be maintained in further development of RCA aviation radio that meets the most exacting requirements of military, transport and light plane service.

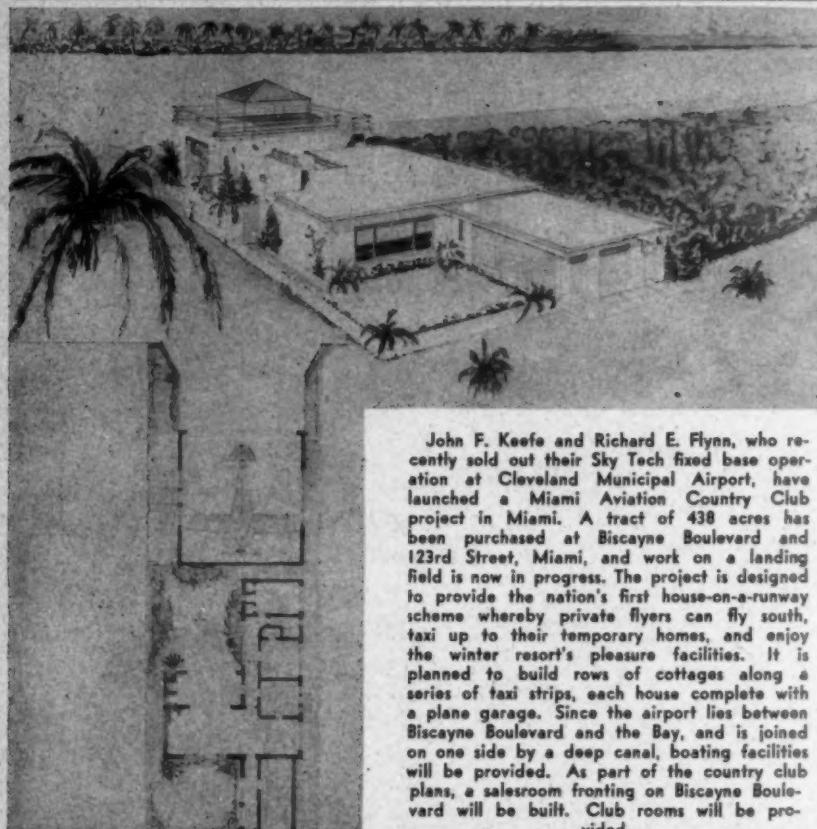


RCA AVIATION RADIO

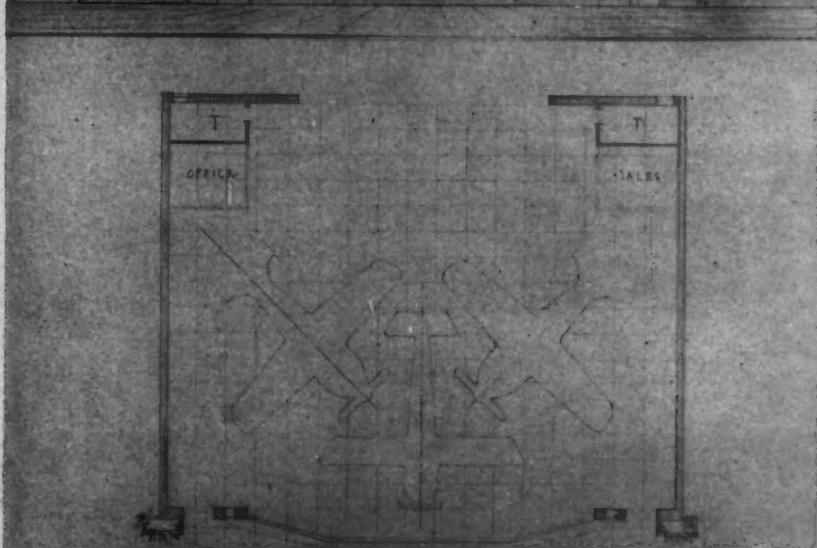
**RADIO CORPORATION OF AMERICA**

CAMDEN, N. J.

## Aviation Country Club Project Launched



John F. Keefe and Richard E. Flynn, who recently sold out their Sky Tech fixed base operation at Cleveland Municipal Airport, have launched a Miami Aviation Country Club project in Miami. A tract of 438 acres has been purchased at Biscayne Boulevard and 123rd Street, Miami, and work on a landing field is now in progress. The project is designed to provide the nation's first house-on-a-runway scheme whereby private flyers can fly south, taxi up to their temporary homes, and enjoy the winter resort's pleasure facilities. It is planned to build rows of cottages along a series of taxi strips, each house complete with a plane garage. Since the airport lies between Biscayne Boulevard and the Bay, and is joined on one side by a deep canal, boating facilities will be provided. As part of the country club plans, a salesroom fronting on Biscayne Boulevard will be built. Club rooms will be provided.



## This Man Keller— He's 'Way Out Front

Clyde Keller is 'way out in front of the postwar planners.

Keller has his own plane, hangar (attached to the house), and government-approved airport on his sweet potato farm near Thomas, Okla. As nearly as he can determine, his Kel-Air Field is the only government-designated airport on a farm in the United States.

His hangar is a converted three-car garage. His Culver Cadet plane is guarded 24 hours a day because there's a deputy sheriff in the family. There are other members of Clyde's family who can sign the plane out for trips at any hour, conforming to a wartime ruling.

"I like to fly," says Keller. "It's my only form of recreation. At first you might have called it my hobby, but now it's a part of my farm operations. It's just 30 minutes from here to Wiley Post Field in Oklahoma City. We time it so we can catch a bus there which makes it just an hour from my farm to downtown Oklahoma City."

Selling sweet potato plants is Keller's main business. He usually beds out five or six thousand bushels to sprout slips. He sells the sprouts wholesale and delivers them by plane when landing facilities are available.

Keller took up flying more than two years ago. He happened to pass the Clinton, Oklahoma, airport and stopped to ask an instructor friend to take him up. Before he knew it he was taking flying lessons. His present plane is the second he has owned. The first, a trainer, was sold soon after Pearl Harbor because of restrictions on private flying. When the rules were relaxed he bought the plane he now owns and is using it more than he did the first one—in his farm business.

## FDR Orders CAA to Halt Airport Building Program

The Civil Aeronautics Administration has been ordered to halt its airport construction program by President Roosevelt until the Army and Navy Airport Development committee can re-examine all projects to determine whether they are required in the interests of the war effort.

While it is believed that a majority of those previously certified as being necessary to the prosecution of the war will be re-certified, CAA officials made it plain that their hands were tied until the military committee completes the survey and files its report. Hence it was pointed out that nothing would be gained by making inquiry or filing protests with CAA.

The President's directive stated that manpower and material shortages made it necessary to curtail all public works programs except those essential to the prosecution of the war.

### FDR Endorses Pre-Flight Plan

President Roosevelt has endorsed the organized pre-flight aviation training program sponsored by the Civil Air Patrol League in a letter to Thomas H. Beck, chairman of the league. His letter stresses the point that "continued and growing familiarity of our coming generations with aviation and its problems is of great importance to our national health and security."

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"SEAT-OF-THE-PANTS" FLYERS LAUGHED - BUT  
*Dick Merrill stayed  
with the Link!*



Chief Link Trainer Instructor Harry Martin,  
of Eastern Air Lines, discusses recent improve-  
ments in the Link with Capt. Dick Merrill

When Eastern Air Lines standardized on Link Training for pilots in 1937, Capt. H. T. (Dick) Merrill had been flying the big "Silverliners" for eight years.

Merrill was quick to evaluate the remarkable ability of the Link Trainer to reproduce conditions of actual flight. He became an untiring student of instrument flying. His enthusiasm got a laugh from some flyers of the "seat-of-the-pants" school, but Dick continued to spend much of his spare time in the Link.

Now sixteen years with Eastern, Merrill has nearly three million miles to his credit. For the Military Transport Division of Eastern Air Lines, he has flown military personnel and materiel around the world. Among Merrill's feats are two



outstanding records: *first* to fly the Atlantic Ocean both ways; *first* to fly the Atlantic round-trip with payload.

On the return leg of that round-trip flight to London, the weather was bad; with low ceiling, poor visibility, rain. Thanks to instrument flying skill, the crossing was "routine."

Dick Merrill has probably spent more time in the Link Trainer than any other pilot of his length of service.

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# Aircraft Makers Have No Voice As WPB Consults Industry on Postwar

By BARBARA B. C. MCNAMEE

THE appointment of a Civilian Policy Committee to advise the War Production Board on reconversion policies underlines the aircraft industry's disadvantage in the scramble among productive industries facing the postwar period. Aircraft, alone, lacks an industry advisory committee, which under the present plan will be the medium for presenting the individual problems of readjustment of all manufacturers.

Under the plan announced by WPB Chairman Donald Nelson, leaders of industry, labor, agriculture, distributors and consumers will examine the problems raised at a series of Industry Advisory Committee meetings. Their reactions and recommendations, representative of each section of the national economy, will be used by Nelson as background for determination of readjustment policies.

Already the automobile, washing machine and refrigerator industries have met with WPB and meetings of other manufacturers are to be called to Washington in the next few months. But the unique situation of the aircraft industry provides no means for arranging a similar meeting.

The nearest equivalent to an Industry Advisory Committee for aircraft is the service-dominated Aircraft Resources Control Office, which is concerned only with war production and has requested aircraft manufacturers to concentrate on war work. Further, manufacturers do not sit in on policy meetings of ARCO as they do with the Industry Divisions of WPB, except through a representative of the Aircraft War Production Council—AWPC's charter forbids discussion of any but war production problems.

## Here's the Agenda:

A summary of the agenda of the automobile industry meeting on April 17 indicates the type of problems which are being discussed with the government. WPB's outline included: governmental action required to bring about a resumption of automobile production; manpower in the auto industry; problems arising in connection with the postwar use of plants both privately-owned and government-owned; machine tools, jigs, dies and fixtures; materials—quantities required for advance experimental work, ways of absorbing surpluses into auto production, and ways of reducing the time between eventual authorization of production and actual beginning of production.

Other thoroughly-discussed topics included the number of cars to be produced; ways to prevent small companies from re-entering peacetime production at too great a loss; prevention of serious unemploy-

## Southwest Aviation Forum

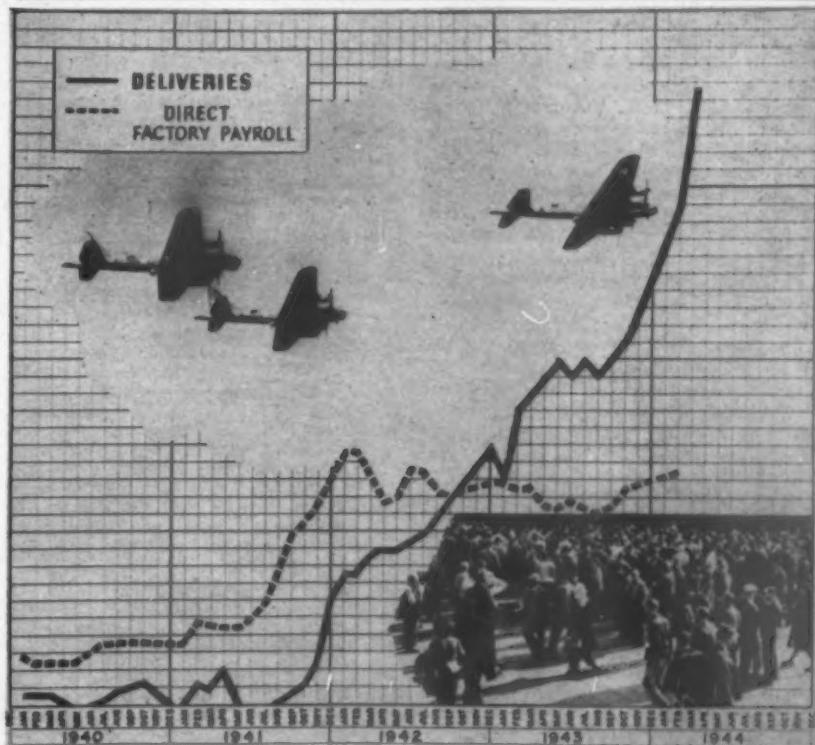
Southwest Civil Aviation Forum, sponsored by the Aviation Committee, Oklahoma City Chamber of Commerce and the Oklahoma City Chapter, NAA, will meet at the Skirvin Hotel, Oklahoma City, Okla., on Friday, May 26, 1944. Charles I. Stanton, administrator of Civil Aeronautics Administration, will act as forum leader and be the principal speaker at the business luncheon.

Done in Gold



Robert Barre, 2 West 47th Street, New York, is the creator of this 14 karat solid gold model of the Bell P-39 aircraft. Complete in every detail, the piece of jewelry is reduced 115 times from the full scale drawings. The model is believed to be the first all-hand-made piece of its kind. It required 160 man hours in production. It has a 17-jewel watch located in the cockpit, which is wound by means of a flexible shaft from the front cannon. From the picture it may be noted that the model is equipped with a landing gear fully retractable.

## Boeing Produces One Fortress Every Hour



This chart shows how production of Flying Fortresses by Boeing Aircraft Co. has steadily increased while the total number of direct factory workers, following the initial build-up more than two years ago, has remained fairly constant. Actual figures are not shown because of military restrictions.

# Illinois Towns Want 1943 Airport Act Made Valid

SEVERAL DOWNSTATE municipalities in Illinois, cooperating with the Airport Authority of Springfield, Ill., have filed a petition with the Supreme court of Illinois asking for a re-argument of the decision whereby the court invalidated the 1943 Airport Authorities Act.

Decision of the court that establishment, operation and maintenance of a community airport is for private, not public, purposes has thrown into confusion the airport development program in Illinois.

Re-argument is being urged on the ground that the court had not been made aware of some important decisions in 20 other states where similar acts providing for establishment, operation and maintenance of airports had been upheld.

The petition for re-argument was prepared and filed by Charles S. Rhyne, of the National Institute of Municipal Law Officers. Rhyne is author of a book and several treatises on aviation law.

This case was brought into the courts through a friendly action instituted by

States Attorney A. H. Greening for the People of the State of Illinois against H. B. Bartholf and the other commissioners of the Springfield Airport Authority. A declaratory judgment was sought to satisfy bond attorneys who had been requested for an opinion on the legality of the Act by bond firms interested in bidding on the bond issue which was floated to carry out the airport development program.

Because the court held that operation of an airport was for private interests, it obviously follows that the Authority, because of Constitutional restrictions, cannot levy taxes to pay interest and to amortize the bonds.

"As a result of this decision, the validity of all other airport legislation may be questioned and the reactionary effects cannot be overestimated," said Louis E. Leverone, chairman of the Illinois Aviation Conference. If the court denies the petition for re-argument, it is understood that an appeal to the U. S. Supreme Court will be considered.

## AAF Materiel Command Revises Personnel

The Army Air Forces Materiel Command has released a revised outline of its personnel and divisions of responsibility. Under Maj. Gen. Oliver P. Echols, Ass't Chief of Air Staff for Materiel, Maintenance, and Distribution, is the Materiel Division headed by Brig. Gen. B. W. Chidlaw. Under the Division is the Materiel Command "which is responsible for the design, engineering, procurement, follow-through of production and inspection of all airplanes and equipment peculiar to the AAF."

Headquarters are at Wright Field, Dayton, O., under the command of Maj. Gen. Charles E. Branshaw. Brig. Gen. Alden R. Crawford is Chief of Staff and Colonels T. A. Sims and D. R. Farr are Deputy Chiefs of Staff. The Command is divided into four operating divisions: Engineering, Procurement, Production and Inspection.

The Engineering Division—Chief, Brig. Gen. F. O. Carroll—is composed of the following laboratories and sections: *Aero-Medical Laboratory*—Chief, Lt. Col. W. R. Lovelace—is responsible for research on the human body in flight and development of physical and medical safeguards for air crews. *Aircraft Laboratory*—Chief, Col. P. H. Kemmer—is responsible for research and development of airframes; conducts wind-tunnel and structures tests. *Armament Laboratory*—Chief, Col. F. C. Wolfe—is concerned with the "business end" of aircraft: cannon, machine guns, bombs, etc. *Engineering Shops Laboratory*—Chief, Lt. Col. J. W. Musser—a modern, well-equipped machine shop, which acts as a service laboratory for the Engineering Division. *Equipment Laboratory*—Chief, Col. G. V. Holloman—is responsible for research and development of over 7000 items such as aircraft instru-

ments, electrical systems, life-saving equipment, parachutes and maintenance tools.

*Materials Laboratory*—Chief, J. B. Johnson—tests and develops all types of materials used in connection with flight: fuels, oils, paints, plastics, rubber, woods, metals, etc. *Photographic Laboratory*—Chief, Col. H. K. Baisley—conducts research on and designs cameras and other photographic equipment used in AAF reconnaissance. *Power Plant Laboratory*—Chief, Col. J. M. Gillespie—is charged with research on and development of aircraft engines and related equipment, such as super-chargers, carburetors, etc. *Propeller Laboratory*—Chief, Maj. R. L. Jordan—designs and tests propellers and the 1200 or more parts that form the intricate mechanism of a controllable pitch "air screw." *Technical Data Laboratory*—Chief, Lt. Col. J. M. Hayward—is a service organization of librarians, photographers, translators and technical experts on foreign aviation. *Flight Section*—Chief, Col. E. K. Warburton—is responsible for test flying of all AAF aircraft. *Aircraft Radio Laboratory*—Chief, Col. H. R. Yeager—is a Signal Corps organization working in liaison with the Materiel Command, designing and testing radio and other electronic devices for aviation use.

*The Procurement Division*—Chief, Col. D. C. Swatland—is the buying agency for the AAF; awards contracts to firms for required materiel. This division handles all legal phases of purchasing and is the second largest procurement agency in the Armed Forces.

*Production Division*—Chief, Brig. Gen. O. R. Cook—is responsible for seeing that 15,000 manufacturers receive the necessary raw and fabricated materials in proper amounts at proper time to facilitate production; provides for additional manu-

## Wright Cooling Fan



This many-bladed fan, shown mounted on the propeller shaft of a Wright Cyclone engine, has been developed by the engineers of Wright Aeronautical Corp. to improve the rate of climb, cruising speed, pay load, and altitude performance of American planes.

facturing facilities; distributes parts and government-furnished equipment to manufacturers; provides for proper utilization of sub-contractors; is responsible for seeing that changes to aircraft and aeronautical equipment made necessary as the result of battle experience are incorporated in production; functions to insure a constant flow of battle-ready airplanes to combat areas.

*Inspection Division*—Chief, Brig. Gen. R. G. Harris—has some 14,000 officers and civilians trained to inspect and accept all aircraft, aircraft accessories and equipment for the AAF. Inspection starts with the raw material and follows through to the finished products.

The Materiel Command is divided into six procurement districts: Eastern Procurement District, 67 Broad Street, New York 4, N. Y. (Whitehall 4-1600), District Supervisor—Col. D. L. Hutchins; Southeastern Procurement District, 86 Edgewood Ave, N.E., Atlanta 3, Ga., (Walnut 2501), District Supervisor—Col. R. W. Propst; Central Procurement District, 8505 W. Warren Avenue, Detroit 32, Mich. (Hogarth 8730), District Supervisor—Col. A. F. Johnson; Midcentral Procurement District, 111 W. Jackson Blvd., Chicago 4, Ill., District Supervisor—Col. J. G. Salzman; Midwestern Procurement District, Municipal Airport, P. O. Box 117, Wichita 1, Kansas, (Tel. 6-6661), District Supervisor—(Acting) Col. F. W. Cawthon; Western Procurement District, 3636 Beverly Blvd., Los Angeles 54, Calif. (Fitzroy 5292), District Supervisor—Brig. Gen. D. F. Stace. Each Materiel Command district maintains area offices, sub-offices and resident representatives in the plants of AAF contractors.

# A New Weapon - The "BLACK WIDOW"

The Northrop P-61 "Black Widow" is a new warplane that will play its part in the present all-out push for victory.

As the Army's first functional night fighter, the Northrop "Black Widow" is equipped to handle the "night shift" . . . to guard newly won air-strips and beachheads . . . to intrude on the enemy's own home ground and upset his plans for offense and defense . . . to destroy his planes.

The P-61 "Black Widow", product of Northrop know-how and craftsmanship, is the largest, most powerful pursuit plane in the skies. It has long range, great speed, fast climb. It is heavily armed.

This new U. S. weapon was designed in cooperation with the Army Air Forces Matériel Command by the Northrop group. In the months ahead you'll hear more about this airplane, see more of it. The deadly "Black Widow". The P-61.



**NORTHROP**

*Designers and Builders of the  
P-61 'Black Widow' NIGHT FIGHTER*

# Naval Bill Provides For 37,735 Planes Next Year

## Navy's Goal Under Manufacturing Capacity; Distribution of Funds is Detailed

By KATHERINE E. JOHNSEN

THE 1945 Naval Appropriation bill, allocating \$4,600,640,000 cash and \$3,600,000,000 contractual authority for Naval aviation and looking to the procurement of 24,230 additional program aircraft, was passed by the House during the fortnight.

These figures compare with \$4,583,725,000 cash and \$2,600,000,000 contract authority allocated Naval aviation during the 1944 fiscal year.

The Navy objective for combat aircraft is now 37,735. Provision has already been made for the procurement of more than twice this objective, but battle losses and obsolescence require continuation of a large scale aircraft construction program.

Orders for the 24,230 aircraft provided for in the bill will be let during the 1945 fiscal year. Deliveries will be 12 to 15 months later.

Rear Admiral D. C. Ramsey, chief of the Navy's Bureau of Aeronautics, and his assistants, provided the House Appropriations Committee with details on aviation expenditures covered by the new appropriation bill. Highlights of Ramsey's statement and a subsequent report on Naval aviation by the Committee follow:

### ● Aviation Growth Traced.

At the time of the outbreak of war in Europe in September 1939, the authorized aviation strength of the Navy was 3,000 airplanes. However, there were then only 1,592 useful airplanes on hand. Congress successively authorized 4,500 planes on June 14, 1940, 10,000 planes on June 15, 1940, and 15,000 planes on July 19, 1940. The last authorization gave the President the right to increase the number of airplanes as required to meet the needs of national defense. The present naval aviation goal of 37,735 program planes was authorized by the President on February 2, 1944.

### ● Aircraft Construction.

For the first time since the beginning of the war, the 1945 estimate for aircraft is not based on the full productive capacity of the country but is based on Navy requirements only, which in many cases are materially less than capacity production.

Of the total of 24,230 planes provided for, 23,310 are combatant and 920 non-combatant. None of the planes are for either the Army or lend-lease.

Of the total, 22,930 will be production of existing types, including five fighter types, two scout bomber types, two torpedo types, four heavy bomber types—both land and sea planes—two transport types, and one scout observation type. The remainder of 1,300 will be new type planes. Fighters will account for 13,020 of the Navy's objective.

Unit costs on planes have declined, particularly in the case of planes ordered in

large quantities. In the 1943 Budget the average cost of planes, including spares was \$194,537. In the 1944 Budget, it was approximately \$175,373; in the 1945 Budget it is \$174,617.

The trend in contracting is to eliminate the cost-plus-fixed-fee contract and the Navy's intention is "to use in all cases where it is possible a fixed-price contract."

The Navy-operated plant at Philadelphia is in production of only one type of plane—a twin-engine patrol seaplane. This PBN made at the Naval Aircraft Factory, is costing approximately \$297,565. The PBY, which is the corresponding design being manufactured by the Consolidated Aircraft Co., is costing \$247,183. Volume of production accounts mainly for the price differential.

### ● Airships.

"In view of the continuing improvement of the submarine situation in the Atlantic, no funds are included in the 1945 appropriation bill for new construction of airships". In 1942, Congress authorized the construction of 200 useful lighter-than-air craft.

### ● Shore Facilities.

"Older air stations are all being expanded, and new air stations being established in order to meet the needs of the increase in operating airplanes." There were 15 naval air stations in operation in 1941; there will be 134 in operation in 1945.

"An increasing proportion of the funds provided for shore facilities will be required in the future for advanced bases" as American Naval forces extend the scope of their operations. Aviation shore facility constructions by the Navy during the war period amount to a total of \$1,593,203,855.

### ● Naval Air Transport Service.

Navy contracts with Pan American Airways and American Export Airlines for air transport services to war theatres amounted to \$30,618,712 in 1943, \$50,457,985 is being obligated in 1944, and the estimate for 1945 fiscal year services is \$62,371,000.

NATS operates 63 planes. Eleven are in Am Ex service and the rest are in PAA service.

Of the total estimate for 1945 NATS, \$51,955,527 will be contracted with PAA, as follows: Atlantic division, \$19,137,710; Pacific division \$23,372,071; Alaskan division, \$9,445,746. Am Ex contracts for the Atlantic area will amount to \$10,416,000.

### Martin Employee Winner

George W. Olsen, 62-year-old cafeteria busboy at the Glenn L. Martin Company's Omaha bomber plant, recently won the Democratic nomination for governor of Nebraska. He will oppose Gov. Dwight Griswold, who was renominated on the Republican ticket, in the November election. Olsen won the nomination over Pat Heaton, said to be "choice of the bosses", by a margin of 344 votes.

### ● Budget Estimates Trimmed.

House Appropriations Committee trimmed \$469,360,000 from the total Budget Bureau estimate of \$8,670,000,000 (including both cash and contract authority) for the Navy Department. Budget estimates were as follows:

Aeronautical equipment	....\$ 113,079,800
Maintenance and operation	.. 1,713,840,000
Experiments and development	19,500,000
Construction of aircraft	.... 6,823,580,000

"The reduction . . . results from the withdrawal by the Department of \$369,360,000 included in the estimates on account of some special types of airplanes, and a reduction made by the Committee of \$13,079,800 in the item of aeronautical equipment, and \$86,920,200 in the item of maintenance and operation. The Committee feels satisfied that such reductions, out of a total of \$1,826,920,000 for the projects to which they apply, can be met without any detrimental effect."

### ● Instruments and Equipment.

Aircraft instruments and equipment, accounting for over \$113,000,000 of the naval aviation appropriation, are provided for as follows:

Navigational instruments	\$ 5,850,800
Photographic equipment	\$23,997,000
Aeronautical instruments	\$ 3,732,000
Radio equipment	\$79,500,000

### ● Maintenance and Operation.

Major items in the allocation for maintenance and operation, accounting for over a billion dollars of the Navy's appropriation, are as follows:

Operation of aircraft	\$782,843,900
Overhaul of aircraft	\$490,380,300
Transport service	\$62,371,000
maintenance of air stations	\$130,504,400
Major repairs at air stations	\$80,000,000
Aviation training devices	\$49,823,000

### ● Experiments and Development.

The estimate of \$19,500,000 is "entirely inadequate" for the experimental projects "which will have to be initiated during this coming fiscal year" to keep a lead in Naval aerial warfare, Ramsey said. This is the same amount as was allocated for the purpose for the 1944 fiscal year.

"My personal view is that \$50,000,000 is a conservative sum" to take care of experimental work in aircraft and accessories dictated by war requirements.

### ● CAA Training.

The Navy's intention to "wipe out" the civilian pilot training program is based on "the feeling that the returns have not been commensurate with the outlay," Ramsey reported.

### ● Navy Contractors.

Ramsey disclosed that there are approximately 22 prime airframe contractors and six engine contractors with which the Navy is doing business.

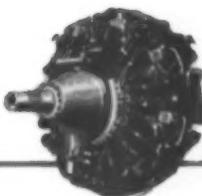


## "Swift completion of appointed rounds"

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Air mail, even at higher postage, now represents 15% to 20% of all long-distance first class mail. But the other 80% to 85% could have been carried in the unused load capacity of our air lines in pre-war 1941 . . . a bonus both to the air lines and to the public.

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SAYS W. C. MENTZER,  
Chief Engineer,  
United Air Lines, Inc.



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# 'Classify All Civil Planes'

## Aero Chamber Group Urges

RECOMMENDATION of the Airplane Technical Committee of the Aeronautical Chamber of Commerce that all civil aircraft be classified into certain categories for licensing purposes was endorsed at the first annual meeting of the Airworthiness Requirements Committee of the Chamber at St. Louis, April 13 and 14.

It was further agreed that these categories be divided into two groups, air carrier and non-air carrier, and that each group have several subordinate classifications such as might be found desirable after further study.

Tentatively, it was decided that the non-air carrier category system have three strength classes: acrobatic, training or utility, normal or personal transport.

Air carrier manufacturers represented at the meeting decided that the air carrier breakdown should be: air carrier, passenger; air carrier, goods; air carrier, special purpose.

Herbert Kueck, design engineer of Beech Aircraft Corp., was appointed chairman of the subcommittee on category system for noncarrier aircraft and R. A. Miller, Consolidated Vultee Aircraft Corp., was named chairman of a similar exploratory committee for air carrier aircraft. The committees have two immediate objectives: (1) to establish the specific number of strength classes desired; and, (2) to establish the basic load criteria within those limits necessary to define clearly the flight envelope, or V-G diagram, for each strength class.

It was disclosed during discussion of the category system, that CAA has agreed tentatively on three strength classes, encompassing five operational categories for civil aircraft: Acrobatic, Strength Class I; Training, Strength Class II; Normal, Class III; Transport, Class IV; and Special Purpose, with no definite strength class.

### Some Opinions:

Personal opinions of CAB and CAA officials attending the meeting (not necessarily governmental opinion) suggested: Elimination of effect of power loading on maneuvering load factors requirements administratively desirable; Caution against drastic changes in maneuvering load factor spread between normal and training categories in low weight range; Prohibition of snap maneuvers in the training category.

It was brought out that the education of the pilot should assist materially in reducing structural failures in flight and it was hoped that the parameters used in establishing transport requirements might also be found satisfactory for developing performance requirements for the other categories.

Difference between maintenance and maintenance equipment for air carrier versus non-air carrier aircraft is a factor which may accentuate the need for a clear-cut division between the two groups. Adoption of a yield factor of safety in the placarded maneuvering speed was emphasized as desirable to provide a margin for the intended level of operation.

A summary of thoughts expressed by

ARC members on a category system featured the unanimous agreement that the category system should incorporate a clear-cut division between air carrier and non-air carrier aircraft and that specific proposed requirements for the category system should be developed in a minimum of time.

The manufacturers realize that airworthiness requirements for air carrier planes will of necessity continue to be complex, but that for the personal plane group, it is essential from an economic standpoint that the requirements be in the most simplified form. Involved rational methods of analysis can be justified by increased structural efficiency for airline equipment but not so for relatively light and inexpensive aircraft.

### Oppose 'Easing' Transition

Altering or compromising new regulations for the express purpose of "easing" the transitional effect of a category system upon existing airplanes is not in the best interests of aircraft development, the members contended. Establishment of an acrobatic category is considered important because of its educational value to the flying public in showing a line of demarcation between straight, level flying and acrobatic maneuvers.

If the category system is to have merit, it must be convenient for an owner to operate his plane in the various categories by adjusting the weight and observing the pertinent operational restrictions. However, final decision on the most suitable type and number of operation categories cannot logically be made until the specific design and performance requirements for

### Aero Chamber Honors Wright

Orville Wright, one of the original members of the Aeronautical Chamber of Commerce when it was organized in 1921, has been elected to honorary life membership in the Chamber.

each selected category have been assigned quantitative values.

Officers of the Airworthiness Requirements Committee, elected for one year, are: National Chairman: E. B. Sporleder, executive engineer, Douglas Aircraft Co., Inc.; Eastern Division: J. H. Gerteis, chief structural engineer, Cessna Aircraft Co., chairman, and G. W. Lescher, executive engineer, Fairchild Engine and Airplane Corp., vice-chairman; Western Division: R. L. Schleicher, staff structural engineer, North American Aviation, Inc., chairman, and C. L. Bates, chief stress engineer, Northrop Aircraft Inc., vice-chairman.

Calendar of ARC meetings will include a steering committee meeting June 17 at Douglas Aircraft Co., Inc., Santa Monica, Cal.; Eastern Division meeting, August 1 and 2 at New York; Western Division meeting, same days, at Los Angeles, Cal.; and a steering committee meeting, October 12, at Los Angeles.

### Stewart Resigns CAA Post

R. McLean Stewart, Executive Director of Training, CAA, will resign about May 15 to return to private business. "Stewart assumed the post in January, 1943," a CAA announcement stated. "Since that time over 200,000 Army and Navy men have received pilot training in CAA supervised schools. His work has been accorded high praise by the Armed Services." He will return to New York City where he is a member of the firm of Harriman, Ripley & Co.

### USCG Demonstrates Helicopter 'Rescue'



The Third Naval District's air arm of the U. S. Coast Guard is using helicopters regularly for patrol and rescue assignments. Photo shows helicopter rising vertically from the water with 'rescued' man safely strapped in litter, allowing him to remain horizontal.

# OPA Plan for Rationing 73-Octane Gas Opposed

## CAA Supervision Over Gas Supply Favored by Industry, Military

RATIONING of 73-octane aviation gasoline became a definite possibility in Washington during the past two weeks, despite protests by aviation, military and petroleum officials that such a move would be "undesirable." Price Administration officials have prepared a drafted order covering use of 73-octane by private flyers but do not expect a final decision on the proposed rationing in the immediate future.

OPA officials who drafted the new limitations believe them necessary because the revocation of WPB Limitation Order L-262 has relaxed all controls on private flying. These officials state that far more gasoline is consumed by a plane than by the individual automobile and "there cannot be justification for pleasure flying when occupational driving in automobiles is rigidly limited." The increased tightening of the overall gasoline supply is further proof of the need for rationing at this time, they claim.

However, the Aviation Petroleum Branch, Army Air Forces, the Army-Navy Petroleum Board and the Petroleum Administration for War are in agreement with the Aviation Petroleum Products Allocation Committee of the Munitions

This gadget . . .



The outrigger, shown above, sprays water on to the propeller blades of the portside engine of an Army medium bomber used by Curtiss-Wright Corporation's Propeller Division in de-icing and anti-icing research work. The attachment is connected with a 400-gallon water tank in the plane's bomb bay.

Assignment Board that "further restriction on this type of aircraft operation is undesirable and that a revised rationing procedure could well be dispensed with provided the Civil Aeronautics Administration would instruct its field representatives to exercise all possible supervision over the utilization of non-critical aviation gasoline in privately-owned aircraft. In the event that the Civil Aeronautics Administration can issue the foregoing instructions to its field representatives, the above-mentioned representatives of the AAF and Army-Navy Petroleum Board are willing to recommend that no further rationing limitations be imposed on the use of non-critical aviation fuel."

CAA Administrator Stanton has given assurance that this kind of instruction can be issued by CAA at any time. Meanwhile a committee representing civil aviation organizations has issued a statement through the Aeronautical Chamber of Commerce approving the suggestion that CAA supervision could more effectively handle the present situation than a new rationing order.

### 'Many Airports Would Close'

"Rationing would tend to close every non-military and non-airline airport in the country," they point out, "which would eliminate frequent emergency use of these facilities by military personnel, their use by the Civil Air Patrol in the performance of its services to the Armed Forces and essential war industries, their function as 'aeronautical schoolrooms' for youth, and their role in training and maintaining a backlog of pilot material, and would set back plans for continuing this nation as a leading air power in postwar years."

The committee included John E. P. Morgan, Manager of the Personal Aircraft Department of the Aeronautical Chamber of Commerce, Lowell H. Swenson, General Manager of the National Aeronautic Association, Roscoe Turner, President of the National Aviation Trades Association, Dexter Martin, President of the National Association of State Aviation Officials and William L. Anderson of the same association.

Rationing of 73-octane gasoline for private and non-scheduled commercial flying operations was proposed by OPA's Eligibility Unit in the form of an amendment to Ration Order 50. Before being issued the order must come before the Petroleum Industry Advisory Committee and be approved by Richard Harrison, chief of OPA's Gasoline Rationing Unit and Charles Phillips, director of the Automotive Supply Rationing Division.

Present regulations state that there is no limitation as to the amount of gasoline that may be issued for use in airplane engines or as to the purpose for which such rations may be issued.

The proposed amendment drafted by OPA states that "limitations are placed on the issuance of rations for airplanes as follows:

"1. Maintenance ration in an amount required for the operation of the plane engine for a period not to exceed four hours per month may be allowed for planes used for non-occupational purposes,

## Stanford Research Staff Preparing CAA Textbooks

A research staff of the School of Education, Stanford University, is now engaged in preparing textbook materials for the Civil Aeronautics Administration for use in the schools of the country.

The work is being supervised by Paul R. Hanna, professor of education, who is directing a staff of 25 persons in a six-month project which involves gathering material on aviation for inclusion in textbooks and courses-of-study at elementary and junior high school levels.

for home-to-work travel or for any purpose other than those listed in No. 2 below. A maintenance ration may not be allowed for any airplane which has a ration outstanding for any of the purposes listed in No. 2 below.

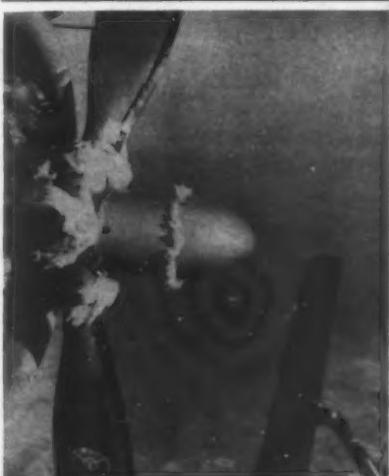
"2. A ration for the amount required may be issued for any of the following purposes:

(a) For in-course-of-work travel which would be deemed preferred mileage under the provisions of Section 1394.77-06 (o) (p) and (q) if travel were done by private automobile and if alternative means of transportation are not adequate.

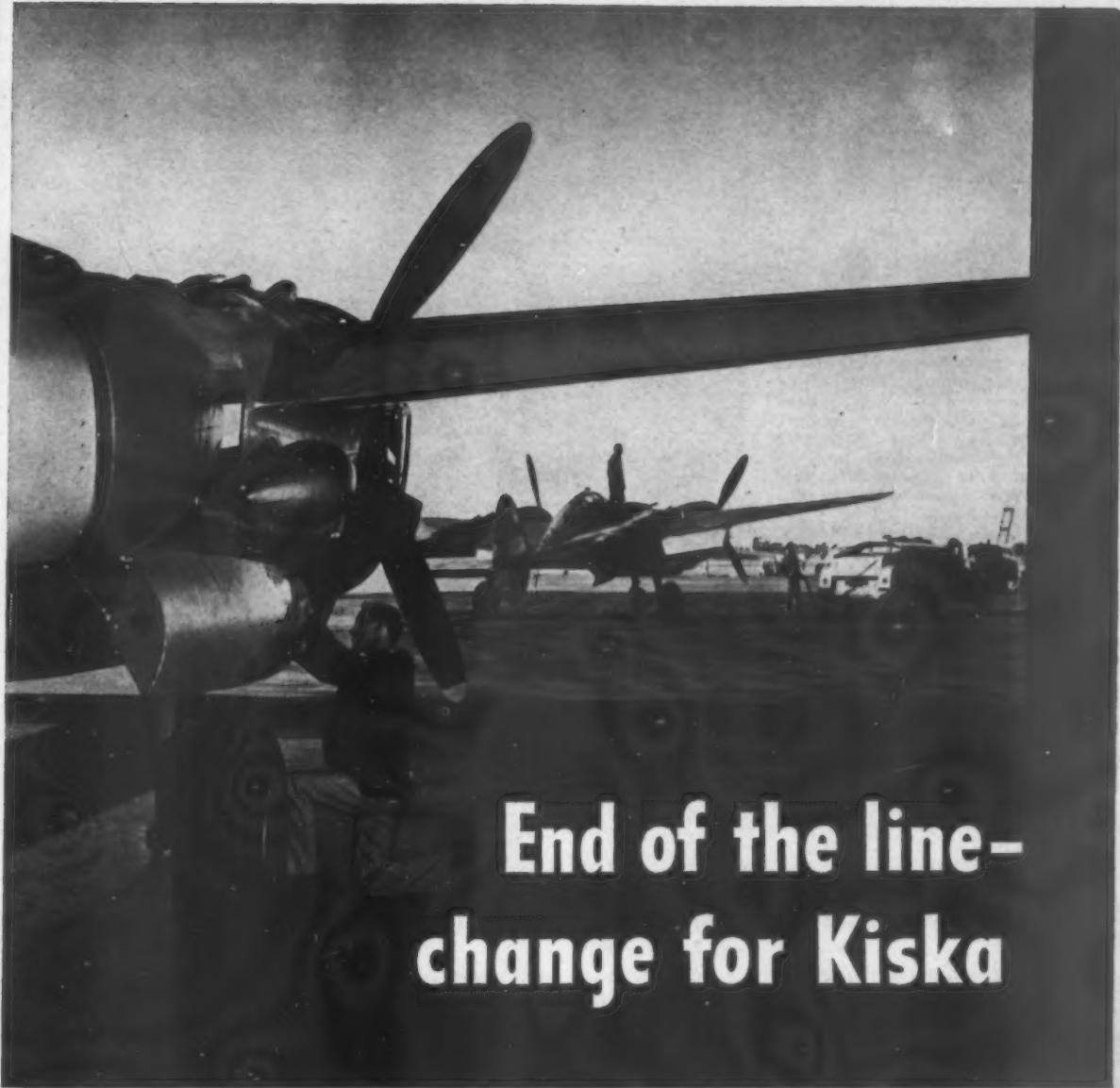
(b) For transportation of persons or supplies in cases of emergency involving an immediate threat to life, health or value of property or for government authorized forest patrol, or for purposes eligible under Section 7851 (b) —change of residence, scientific expeditions, tests and experiments.

(c) For the operation of private planes in connection with the Civil Aeronautics Administration flight training program. Applications for

. . . produces this



Ice, one of the greatest hazards of aviation, rests like a crown on propeller power unit cover of C-W test plane after experiment at 20,000 feet. The outrigger shown in first column sprayed water on the unit.



## End of the line- change for Kiska

Life for a P-38 begins at the end—the end of the production line! If the Army says: "Change for Kiska"—the P-38 is flown to a Lockheed Modification Center where "winterizing" starts. Propane primers to make engines start quickly are added. So is insulation for tubing. Cockpit heaters are installed for the comfort of the pilots.

### Change for Munda

If the Army says: "Change for Munda" or somewhere in the tropics, the P-38 undergoes other modifications. Different armament or special radio equipment may be needed.

But whatever it is, or wherever these Lockheed Lightnings go, proper modification assures proper performance.

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gasoline in such instances shall be certified by an authorized representative of the Administrator of CAA.

(d) For flying in connection with the Civil Air Patrol program. All applications for gasoline for this purpose shall be certified by the appropriate CAP Wing or Base Commander.

(e) For student flight training programs by private fixed base operators. Rations may be issued in an amount sufficient to allow each regular student to pursue his basic training course during the ration period. No ration may be allowed to permit a student more than a total of 50 hours of training.

(f) For use in planes rented from fixed base operators by persons needing flying time to maintain their private pilot license.

"3. All applications for gasoline by fixed base operators using planes for training purposes or for other eligible purposes shall be certified as to eligibility, need and amount by an authorized representative of the Administrator of CAA.

"4. All applicants for gasoline to be used in airplane engines shall exhibit to the Board the aircraft log book of the plane or planes for which application is made, which log book contains a record of all the plane's operations during the previous ration period.

"Annotation: Table showing gallons per hour required by airplanes according to horsepower of the plane:

50 to	65 hp .....	5 gals. per hour
75 to	85 hp .....	7 gals. per hour
90 to	120 hp .....	9 gals. per hour
145 to	165 hp .....	12 gals. per hour
200 to	250 hp .....	15 gals. per hour
300 to	400 hp .....	20 gals. per hour
400 to	600 hp .....	25 gals. per hour
600 to	800 hp .....	35 gals. per hour
800 to	1100 hp .....	45 gals. per hour
1100 to 1300 hp .....	55 gals. per hour."	

## Florida Aviation Committee Wants Air Schools Retained

The Florida State Aviation Committee has recommended to the state legislature the retention of civilian aviation schools in Florida. The committee pointed out that the state's "favorable climatic conditions had long since proved ideal for the operation of such schools." The committee also recommended that elementary aviation ground courses be included in the curricula of Florida high schools.



A group of air officials of the Norwegian government visited the hangars and shops of Pennsylvania-Central Airlines at Washington, D. C., recently. Shown, left to right, are Commander K. Ostby, air attache of the Norwegian Embassy; Knut Somme, member of Royal Norway Air Transport; C. Bedell Monro, president of PCA; J. H. Carmichael, vice president, PCA; Advokat Annaeus Schjodt, chairman of the board, Royal Norway Air Transport; Capt. Morten Krog, Royal Norwegian Air Force and assistant air attache; and Ralph Manchester, PCA superintendent of operations.

## Reduced Rates on Policies

Associated Aviation Underwriters has advised its representatives of reduced rates applying on new or renewal Aircraft Liability policies, attaching on and after April 1, 1944.

Changes made in Aircraft Hull policies, attaching on and after May 15, 1944, are announced: "A \$50 deductible will apply on all ground coverages except Fire and Theft. This deductible can be eliminated upon payment of a flat minimum premium of \$50 per aircraft. In addition, the participating light plane policy rates will be increased from 11% to 12% for the private business and pleasure classification with an increase from 13% to 13½% for the commercial classifications."

## Administration Criticized By Damon for Failing to Return Planes to Airlines

Failure of the Administration to return the airplanes which were seized from the airlines on Presidential order in 1941 was deplored by Ralph S. Damon, vice president and general manager of American Airlines, in a recent speech before the Society of Security Analysts in New York City.

"The airlines are suffering badly from lack of planes," Damon said, "and cannot get from the Administration any information as to even a plan for returning the airplanes seized on Presidential order. This is hard to understand since the production of this type of airplane is high and the diversion of factory deliveries of this type plane for only one day would do much to speed the war work of the domestic airlines in the large priority loads they carry."

Damon lauded the Civil Aeronautics Board for its "cautious evaluation of the countless airline routes now being filed."

"The Civil Aeronautics Board is to be commended," he said, "for its sound appreciation of the economics facing the air transportation industry and for the realistic approach to the problem of preventing in 1949 the spectacle of the carcasses of defunct airline companies strewn across the country. We saw this in 1929 among the private plane manufacturers. From the quantity and quality of applications for airline routes now being filed by taxi-cab companies and others equally unrelated to the air transportation industry that spectacle could easily take place except for the wise course set by the Civil Aeronautics Board."

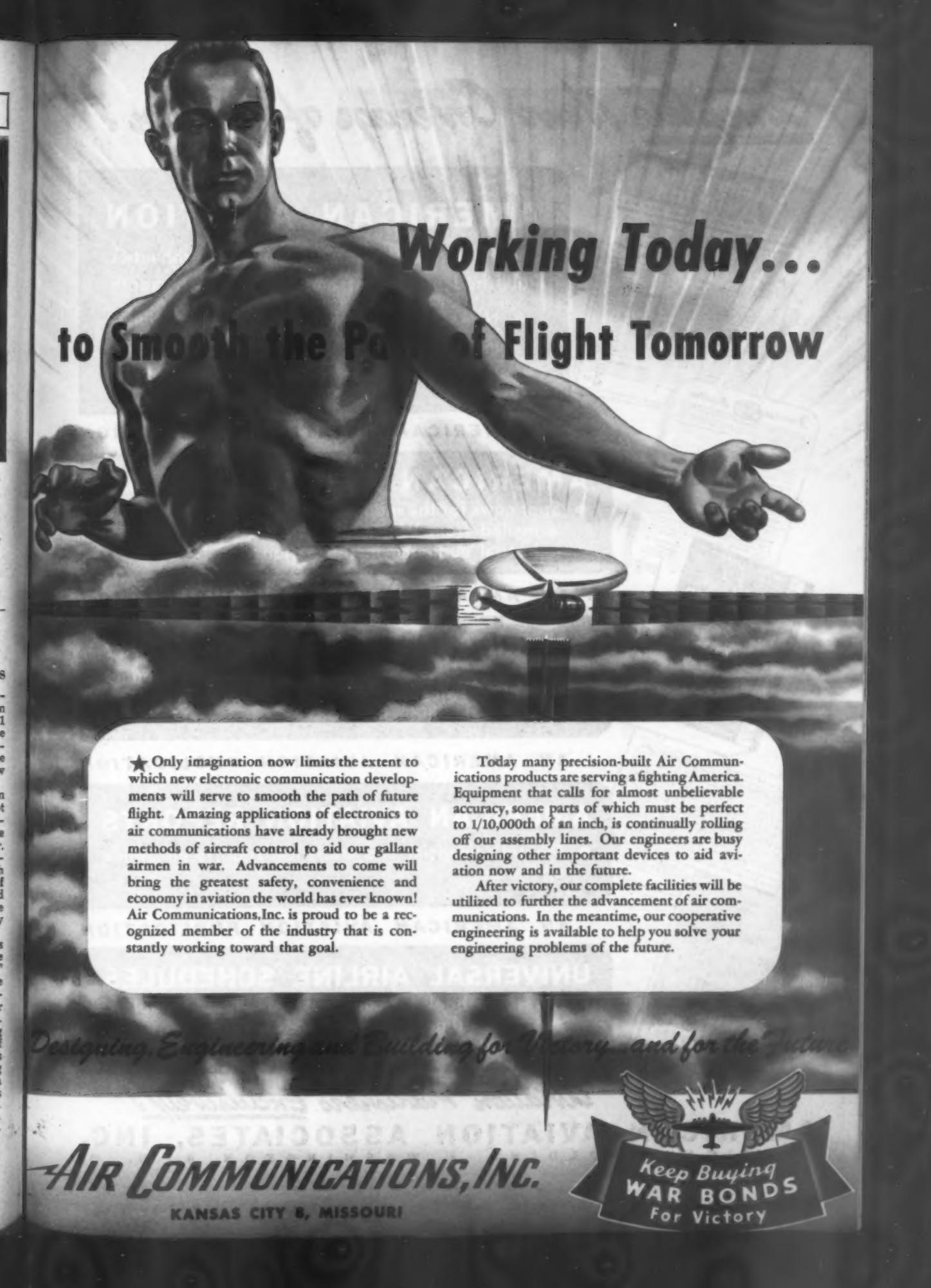
## Carnegie Fund Predicts Aviation Problems Will be 'In Forefront' After the War

Problems relating to aviation "will be in the forefront after the war," George A. Finch, director of the Carnegie Endowment for International Peace, declared last fortnight in releasing the annual report of the fund's division of international law. Finch suggested that the endowment begin now compiling documents relating to aviation.

"Such a compilation may be urgently needed as the foundation of adequate legal

measures for international cooperation in dealing with postwar aviation developments," he said.

"The division has encouraged the best international legal thought in the country to concentrate upon a statement of international law of the future based upon full knowledge of the past. Our program has not been stereotyped in outmoded forms, but is elastic and has been adapted to meet the changing requirements of the times."



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★ Only imagination now limits the extent to which new electronic communication developments will serve to smooth the path of future flight. Amazing applications of electronics to air communications have already brought new methods of aircraft control to aid our gallant airmen in war. Advancements to come will bring the greatest safety, convenience and economy in aviation the world has ever known! Air Communications, Inc. is proud to be a recognized member of the industry that is constantly working toward that goal.

Today many precision-built Air Communications products are serving a fighting America. Equipment that calls for almost unbelievable accuracy, some parts of which must be perfect to 1/10,000th of an inch, is continually rolling off our assembly lines. Our engineers are busy designing other important devices to aid aviation now and in the future.

After victory, our complete facilities will be utilized to further the advancement of air communications. In the meantime, our cooperative engineering is available to help you solve your engineering problems of the future.

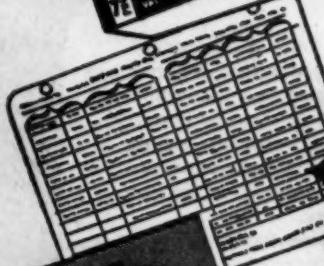
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**2nd Aviation Clinic  
Scheduled Nov. 15-18  
In Oklahoma City**

The Second Annual Clinic of Domestic Aviation Planning will be held in Oklahoma City, November 15-16-17-18, inclusive, under the same auspices as the first clinic.

The National Aeronautic Association, jointly with Governor Kerr of Oklahoma, has created a Clinic Executive Committee which will meet in Washington on May 8 and 9 to work out preliminary plans for the 1944 Clinic.

Members of the Executive Committee are: Stanley Draper, Oklahoma City Chamber of Commerce, chairman; Steadham Acker, Birmingham, Ala., airport, program director; Harry A. Bruno, chairman public relations committee; Kern Dodge, chairman resolutions committee; Glenn B. Eastburn, Los Angeles Chamber of Commerce, vice-chairman credentials committee; W. R. Enyart, president, NAA; Robert A. Hefner, Mayor, Oklahoma City; Paul Hoheisel, president, Oklahoma City chapter NAA; Jack Hull, clinic secretary; Col. Jack H. Jouett, chairman, credentials committee; Gov. Robert S. Kerr; Glenn C. Kiley, Oklahoma City Chamber of Commerce; O. M. Mosier, American Airlines, Inc., program chairman; Wm. P. Redding, Denver Chamber of Commerce; Lowell H. Swenson, manager NAA; Gill Robb Wilson, past president, NAA.

## New York's 6th Avenue Association Plans Big Things for Helicopter

A conference with helicopter manufacturers and designers to ascertain how postwar buildings should be planned to serve as helicopter airports is being arranged by New York City's Sixth Avenue Association. The conference, to be held early in June, is dictated by the association's desire to halt the pre-war trend toward retail decentralization by postwar use of helicopters to literally jump suburban and out-of-town shoppers over congested street traffic on to store roofs at strategic locations.

V. Clement Jenkins, president of the association, believes such helicopters must carry 10 to 14 passengers. An application already has been filed with the Civil Aeronautics Board by Metropolitan Airways, Inc., 347 Madison Avenue, New York, which tentatively plans helicopter lines from regular airports to landing stages on the roof of Gimbel Brothers Department Store at Sixth Avenue and 32d Street, the Pan American Building at 45th Street and Sixth Avenue, where the major airlines have offices, and an undetermined roof in the financial district.

Metropolitan Airways is working closely with the Sixth Avenue Association. Its president, Hendrick Van der Schalie, is also president of Van der Schalie Associates, a corporation engaged in developing a multi-passenger type of plane capable of vertical takeoff and landing. A 10-passenger, vertical-takeoff experimental model is now being engineered by the company.

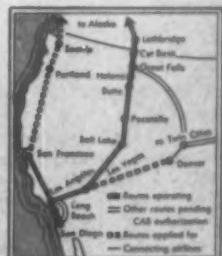


# **Western Air Lines now flies San Francisco — Los Angeles**

Western Air Lines has inaugurated regular daily schedules between San Francisco and Los Angeles, thus reestablishing between these two cities a service pioneered by this company 16 years ago this month. It was in May 1928 that Western Air Lines introduced the first multi-engined, cabin planes large enough to walk around inside... air conditioned... meals aloft... two pilots and a system of 37 weather reporting stations. This "model air line" marked the true beginning of the Air Transport era.

Today, the San Francisco-Los Angeles route is one of the two heaviest-traveled intercity airways in America . . . and will no doubt multiply again and again to fulfill normal travel demands after the war. Western's 18 full years of pioneering experience in Air Transportation will again be devoted to building a "model airline" service between these West Coast cities.

*General Traffic Offices  
510 W. Sixth Street, Los Angeles, Calif.*



## National Advisory Committee for Aeronautics



This photo of the NACA membership was taken at the April 20th meeting in Washington, D. C. Two in front, left to right: William Littlewood, Vice President—Engineering, American Airlines; Dr. Theodore P. Wright, Director, Aircraft Resources Control Office, Aircraft Production Board. Left to right: Dr. William F. Durand, Professor Emeritus of Mechanical Engineering, Stanford University; Maj. Gen. Oliver P. Echols, U. S. A., Assistant Chief of Air Staff, Materiel, Maintenance and Distribution, Army Air Forces; Dr. Vannevar Bush, Director, Office of Scientific Research and Development; Vice Admiral John S. McCain, U.S.N., Deputy Chief of Naval Operations (Air); Maj. Gen. Barney M. Giles, U.S.A., Chief of Air Staff, representing Gen. Henry H. Arnold, Commanding General, AAF; Dr. Orville Wright; Dr. George W. Lewis, Director of Aeronautical Research, NACA; Dr. Jerome C. Hunsaker, Chairman, NACA; John F. Victory, Secretary, NACA; Dr. Charles G. Abbot, Secretary, Smithsonian Institution; Dr. Edward Warner, Vice Chairman, Civil Aeronautics Board; Dr. Lyman J. Briggs, Director, National Bureau of Standards; Rear Admiral Ernest M. Pace, U.S.N., Special Assistant [Material], Bureau of Aeronautics; Hon. William A. M. Burden, Assistant Secretary of Commerce; Dr. Francis W. Reichelderfer, Chief, U. S. Weather Bureau.

### CAA Tests on 'Aeronautical Knowledge' Scheduled in High Schools During May

Bruce Uthus, director of Aviation Education Service, CAA has announced that CAA Examinations on "Aeronautical Knowledge" are scheduled to be held in high schools throughout the country between now and June 30.

Teachers who have conducted courses in aviation are advised that they or school officials should file their request on Form ACA 1159 entitled, "Request for the Private Pilot Written Examination by Students in High School Pre-Flight Aeronautics Courses" with the General Inspection Division, CAA, Washington, D. C. not later than 30 days prior to the date that the examination is to be given.

Application forms may be obtained from the District, Regional or Central office, CAA marked "Attention: General Inspection," or from State departments of Public Education.

Secondary school students of aeronautics had their first opportunity to take the CAA examinations on aeronautical knowledge in January and May-June, 1943. Thousands of boys and girls qualified for a Certificate of Aeronautical Knowledge as a result of passing one or more sections of the examination in 1943.

Similarly, certificates will be awarded by CAA to those who receive a grade of 70 or better in the coming examinations.

These examinations are designed to serve two purposes:

a. Test the proficiency of students in the practical understanding of pre-flight aeronautics in accordance with CAA standards.

b. Credit proficient students with the meeting of the ground school aeronautical knowledge requirements for the Private Pilot Certificate.

A student, who has obtained the CAA Certificate of Aeronautical Knowledge indicating satisfactory accomplishment in each of the four sections of the examination, may obtain a Private Pilot Certificate at any time within 12 months from the date of the examination without re-examination in these fields, provided he or she passes a flight test and meets other requirements as prescribed by Civil Air Regulations.

Students must meet the following eligibility requirements to take the examination:

1. Age of not less than sixteen years at the date of the examination.

2. Enrollment in or completion of a course in pre-flight aeronautics at the date of the examination.

3. Submission of the name of the student on a list to the CAA by the principal or superintendent of his school in advance of the scheduled date of the examination.

### Burden Tells How Federal Aids Would Spur Private Flying in Postwar Period

The government should play an important role in the development of post-war private flying, in the opinion of William A. M. Burden, assistant secretary of commerce. In an address before the recent National Light Aircraft Meeting of the Institute of the Aeronautical Sciences in Detroit, Burden listed what he expects the government to do for private flying as follows:

1. To provide Federal aid in the construction of landing fields and promote and assist in the provision of a system of markers for the private pilot throughout the country.

2. To conduct basic research projects looking toward the improvement of the personal airplane.

3. To limit its regulation to that regulation required to provide reasonable protection for the public.

4. To promote aviation education in the schools, including financial assistance for flight instruction.

Burden pointed out that private flying "has important implications for national defense."

"The number of Americans who learn how to fly as a part of their ordinary civilian existence is an index of our national air strength," he said. "It also has a very real bearing on the education of our people and their ability to comprehend and solve the problems of the air age."



*Buy War Bonds — to Have and to Hold*

## Through the Roof

The whole vast area of conquered Europe is a Nazi stronghold. Massive walls and powerful fortifications defend it—all as nearly impregnable as Hitler can make them.

But overhead there are no walls. It is *through the roof* that Allied bombers have inflicted the heaviest blows on Germany's war-making machine.

To the valiant young Americans who man the Boeing Flying Fortresses, "through the roof" now has an added significance. On days when there was a thick overcast, Europe was once safe from precision bombing. Today new navigation devices enable the Fortress

bombardier to hit his target through dense cloud cover with almost the same uncanny accuracy as in clear air. The first raid by the Forts on Berlin was made under just such conditions.

The deadly bombing done by the big Boeing planes has become a matter of wonder, not only to our Allies but to the enemy. After Flying Fortresses had demolished the Messerschmitt plant at Regensburg without allowing a single bomb to fall on a hospital which was practically a part of the factory area, our Eighth Air Force fliers got a special radio message from the Luftwaffe. The net of it was: "Congratulations on your accuracy. We don't know how you do it!"

The Fortress crews know the answer. It is done by cool courage, skill and training, and by the bombing stability of the steady-flying Forts themselves.

Some day Boeing's design, engineering and manufacturing skills will be turned again to products of peace. You can be sure of any such product . . . if it's "Built by Boeing" it's bound to be good.

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### NEW AIR FORCES COMBAT FILM

The Army Air Forces motion picture, "The Memphis Belle," shows heroic crews of Boeing Flying Fortresses in actual combat over Germany. See it at your local theater.

# Shortest Coast-to-Coast Route May Go to United

**I**F THE Civil Aeronautics Board concurs with the recommendation of one of its examiners, Albert F. Beitel, United Air Lines will become the possessor of the shortest transcontinental air route in the United States.

Beitel recommended on April 13 that UAL be given the route between Denver and Los Angeles, via Grand Junction, Col., and Las Vegas, Nev. The shortest route is now held by Transcontinental & Western Air, Inc. The proposed new route of United would be approximately 87 miles shorter than the route operated by TWA.

Competing for this same route were: Western Air Lines, TWA, and Continental Air Lines. Examiner Beitel recommended that their applications be denied. The recommendation regarding UAL contains a condition that the carrier shall not transport local passengers, mail, or property between Las Vegas and Los Angeles. The examiner recommended further that Cedar City, Utah, one of the stops requested, should not be included in this proposed new service, as he felt the evidence did not show that this town required air transportation.

The proposed route between Denver and Los Angeles is designed to bridge the last gap in the country's transcontinental air map. It became a feasible route, from an operational point of view, with the advent of the four-engine plane. The route crosses the Rocky Mountains at one of the highest points, near Berthoud pass, where the altitude is approximately 16,500 feet.

E. D. Nicholson, UAL territorial executive, said that if his company is certified for this route, the Douglas DC-4's would cross the Continental Divide directly west of Denver which will be the highest point on the route. He gave the ceiling of the DC-4, operating on three of its four engines, as 18,000 feet with a cruising range of 1,500 miles.

## January Hearing Exciting

The hearing on the applications was held from Jan. 10 to 19. Because of the traffic generating potentialities of this proposed route, a spirited fight was waged by the four applicants, much of it centering about the monopoly, big and little carrier and interchange issues.

After finding that the route between Denver and Los Angeles is required in the interests of public convenience and necessity, Beitel stated that it does not appear that two carriers are required to provide the service, because there is not sufficient traffic potential to justify it.

"The public convenience and necessity require this route in order to improve transcontinental service as well as to provide a direct, single-company service between Denver and Los Angeles," the report states. "A transcontinental operator could clearly give better service to through passengers, which will account for about 85% of the anticipated traffic, than could a local or regional carrier. The Board has frequently found that one-company service is superior to a connecting service and is preferred by the public to a two-company service."

"However, Western and Public Counsel

contend that interchange will serve the public as well as one-carrier, one plane service, and the advantages of through transcontinental service can thereby be secured, even though a local carrier operates the route. The record shows that interchange service, operated at Salt Lake City is superior to one-company, connecting-plane service, but it does not show that interchange service is equal to one-company, single-plane service."

With further reference to interchange, Beitel stated: "Interchange of sleeper equipment, of course, does not give improved daytime service and the record is not clear that interchange would be attempted on all flights. Although additional equipment might be required, interchange seems to be entirely feasible at any time."

After calling attention to some of the inherent problems involved in interchange which he considers are not unsurmountable, Beitel states that no interchange agreements were submitted in connection with the proposed service between Denver and Los Angeles.

## Patterson Resigns ATA Post

W. A. Patterson, president of United Air Lines, has submitted his resignation as a member of the Air Transport Association's board of directors. No specific reason was given for his action. Patterson has been a member of the board since its formation.

"Interchange agreements appear to have their greatest usefulness, and should be utilized, to improve existing services wherever practicable. In straightening out transcontinental routes, or in establishing new routes, however, the route should not be made dependent upon and subject to the exigencies of interchange agreements," the report states.

Beitel does not share the views of the counsel of the other carriers that awarding of this route to UAL will give the carrier a monopoly on the West Coast. He pointed to a Board decision in 1940 wherein UAL's application to purchase Western's predecessor (Western Air Express Corp.) had been denied, on grounds that such acquisition would have given UAL predominance in the West and would have eliminated the only independent north-south carrier. This, the Board had held, would not be in the best interests of local business in that territory and would not serve to maintain and encourage necessary competition.

He further points out that since that decision, the Board has authorized TWA to include Los Angeles on its route between San Francisco and San Diego and that Western likewise has been given a certificate to compete with United between Los Angeles and San Francisco.

"... In view of these circumstances it is difficult to perceive how United will acquire a monopoly by operating an east-west route into Los Angeles, a city now served by TWA, American and Western.

## Favors 'Through' Carrier

While endorsing the principle that the small carrier shall attain commercial self-sufficiency and need new route mileage, Beitel states that this particular route is especially adapted to a service which can best be performed by a transcontinental carrier. He states that the type of equipment necessary is the type which can best be utilized by a transcontinental carrier.

The examiner touched at length on the question of diversion. He found that Western probably would suffer most from diversion but stated as a conclusion that "taking into consideration all of the factors which will affect the extent of diversion, and the future traffic which Western will be able to secure over its system generally, the conclusion is supportable that the proposed service will not so adversely affect Western that it should be denied for that reason. Since the proposed service would affect Western more adversely than any other carrier, it follows that this conclusion applies to all the carriers."

In recommending against TWA, Beitel concludes that granting of United's application would result in less diversion from Western and Continental and would involve only 847 new route miles compared to 1,392 by TWA.

## Northeast Moves Terminal



Northeast Airlines has moved its Atlantic Division terminal from Presque Isle, Me., to Logan Airport, East Boston, Mass. The first plane to arrive at the new location was piloted by Capt. A. R. Chaves, who is shown being greeted by Paul F. Collins, president of the airline, and Milton H. Anderson, vice president in charge of operations. In doorway (front): Navigator Dan McCullough, left, and Fred A. Weyhrach, supervisor of cargo operations; (rear) Radio Officer E. R. Hardy, left, and Co-pilot Richard B. Hubbell.



## Soaking up Shock with CUSHIONS OF STEEL

Potentially, the impact of landing is tremendous, yet aircraft equipped with Aerols\* "sit down" with effortless ease. Inside their steel cylinders, hydraulic resistance absorbs the shock of initial contact, while pneumatic buoyancy cushions the airplane during taxiing. Aerols have served aviation for twenty years, are performing efficiently in today's global conflict, and will again contribute substantially to the peacetime progress of travel by air.

**THE CLEVELAND PNEUMATIC TOOL CO.  
AIRCRAFT DIVISION • • CLEVELAND 5, OHIO**  
Also Manufacturers of Cleco pneumatic tools, Cle-Air shock absorbers for vehicles and Cleveland rock drills for mining and construction.

\*THE PNEUMATIC-HYDRAULIC (AIR-OIL) SHOCK  
ABSORBERS ON AIRCRAFT LANDING GEAR



**THE KOLLSMAN VERTICAL SPEED INDICATOR** is so sensitive that a pressure differential of but one millimeter of water causes the instrument to register 100 feet on the dial. This is comparable to the difference in pressure between the inside and outside of a soap bubble. Friction is reduced almost to the vanishing point by ingenuity of design and precision manufacture. But despite its delicacy, the instrument is compact, light in weight, rugged, dependable . . . characteristic of all Kollsman aircraft instruments.



**KOLLSMAN AIRCRAFT INSTRUMENTS**

PRODUCT OF



ELMHURST, NEW YORK

GLENDALE, CALIFORNIA

# Ryan Aero School Applies for Domestic, World Routes

**R**YAN SCHOOL OF AERONAUTICS has announced extensive plans for entering postwar air transport, in the local and regional field, as well as internationally through a proposed route to Asia.

The company, with offices at Lindbergh Field, San Diego, Cal., filed on April 11 an application with the Civil Aeronautics Board which virtually blankets California with proposed local-feeder-pickup routes, and a week later filed two more applications—one for a route to Asia, the other to Cuba.

Ryan proposes to bring feeder and air mail pickup service to more than 100 cities in California, over six routes. The following listing of cities in capital letters are passenger stops where landings will be made while the other communities will be given pickup and delivery service of air mail and express without actual landings being made:

**Los Angeles-San Diego Route:** BURBANK, Whittier, Fullerton, SANTA ANA, Long Beach, Huntington Beach, Laguna Beach, San Juan Capistrano, OCEANSIDE, Vista, Escondido, El Cajon, SAN DIEGO.

**Los Angeles-Yuma Route:** BURBANK, Pasadena, Monrovia, Pomona, Ontario, Corona, Riverside, SAN BERNARDINO, Redlands, Hemet, Beaumont, PALM SPRINGS, Indio, Calipatria, Brawley, IMPERIAL, Calexico, YUMA.

**San Francisco-Los Angeles Route:** SAN FRANCISCO, Redwood City, Sunnyvale, San Jose, Los Gatos, SANTA CRUZ, Watsonville, Salinas, MONTEREY, Gonzales, King City, Pase Robles, Atascadero, SAN LUIS OBISPO, Guadalupe, Santa Maria, Lompoc, SANTA BARBARA, Carpinteria, Ojai, Ventura, OXNARD, Santa Paula, Fillmore, BURBANK.

**San Francisco-Bakersfield Route:** SAN FRANCISCO, Oakland, Livermore, Tracy, STOCKTON, Ripon, Oakdale, Modesto, Turlock, Newman, MERCED, Los Banos, Los Palos, Chowchilla, Madera, FRESNO, Sanger, Reedley, Selma, Handford, Corcoran, VISALIA, Lindsay, Porterville, DELANO, Wasco, Taft, BAKERSFIELD.

**San Francisco-Redding Route:** SAN FRANCISCO, Oakland, Walnut Creek, Martinez, Pittsburg, Fairfield, Dixon, Woodland, SACRAMENTO, Roseville, Placerville, Auburn, Lincoln, Grass Valley, MARYSVILLE, Colusa, Gridley, Oroville, CHICO, Orland, Corning, Red Bluff, Anderson, REDDING.

**San Francisco-Eureka Route:** SAN FRANCISCO, Sausalito, San Rafael, Vallejo, Napa, Petaluma, SANTA ROSA, Calsoga, Healdsburg, Cloverdale, Lakeport, UKIAH, Willits, FORT BRAGG, Laytonville, Garberville, Scotia, Fortuna, EUREKA.

A regional route, through the Southwestern part of the United States, would provide daily schedules from the West Coast to Cuba. Los Angeles and San Diego would serve as western termini with stops proposed at Tucson, El Paso, San Antonio, Houston and New Orleans.

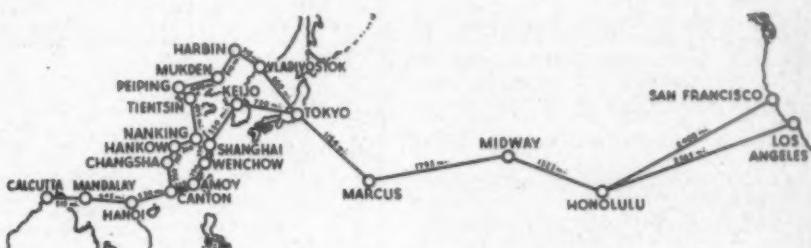
The trans-Pacific service would operate from either Los Angeles or San Francisco to Calcutta, India via Honolulu, Midway and Marcus Islands to Tokyo. From Tokyo one route would go through Korea, China, French Indo-China, Burma and

India with stops, among others, at Shanghai, Canton, Hanoi and Mandalay terminating at Calcutta. From Tokyo, a branch route to service portions of Russia, Manchuria and China, including stops at Vladivostok, Peiping and Nanking, would rejoin the main route at Canton. Initial service would provide a weekly round trip on the 13,760 mile Asiatic route with frequency of schedules to be increased as traffic requirements dictate.

The Ryan School operates two of the Army's largest primary pilot training bases, employing large staffs of pilots, maintenance personnel and technicians. Flying schedules conducted today are the



California Feeder Routes



Proposed Trans-Pacific Route

equivalent of five round trips around the world every day, a company spokesman stated.

"American international commercial airlines can open up for us in the postwar period vast new commercial frontiers," said T. Claude Ryan, president of the Ryan school and its parent company, Ryan Aeronautical Co., in commenting on the proposed new services. "All the undeveloped sections of the world can be our nation's business frontiers."

"All over the globe, customers will be receptive to American goods, both our long-established ones and the miraculous new ones our inventors have brought forth as by-products of the war."

"For a manufacturing nation such as ours, new and wondrous opportunities are knocking at the door. But we must open the door and reach out. Reach out as never before for foreign as well as domestic commerce."

## Recent CAB Orders Affecting Air Carriers

Order No. 2758: Authorized Western Air Lines Inc. to inaugurate service between Los Angeles and San Francisco

Order No. 2757: Authorized Pan American Airways, Inc. to inaugurate non-stop service between Miami and Merida, Mexico.

Order No. 2760, Docket 525 et al: Permitted Southwestern Air Lines, Inc. to sever applications in Dockets Nos. 805 and 1169 from consolidated proceeding.

Order No. 2761: Rescinded temporary exemption order No. 2643 regarding service to Messena, N. Y.

Order No. 2762: Authorized Eastern Air Lines, Inc. to temporarily suspend service at Allentown, Pa. until injunction order is dissolved.

Order No. 2764, Docket 525 et al: Permitted PCA to withdraw its application in Docket 1155 from consolidated proceeding and dismissed application.

Order 2766: Granted Braniff Airways, Inc. permission to use Nuevo Laredo airport to serve Nuevo Laredo.

Order 2778, Docket 800 et al: Granted TWA permission to intervene.

Order 2779, Docket 525 et al: Permitted the Port of New York Authority to intervene.

Order 2780, Docket 651 et al: Permitted Kansas City Southern Transport Co. to withdraw dismissed application.

Order 2781: Permitted Western Air Lines, Inc. expeditious use of airport at Mills Field, San Francisco Municipal Airport.

Order 2782: Permitted Continental Air Lines, Inc. to inaugurate non-stop service between Denver and Pueblo.

Orders 2793 and 2794: Permitted Woodley Airways to temporarily suspend service at Pedro Bay and Tyonek, Alaska.

Order 2797: Permitted UAL to inaugurate non-stop service between Sacramento and Cheyenne.

## Air Line Dispatchers Association Marks Fifth Anniversary Next Month

By PEGGY GUETTER

The Air Line Dispatchers Association is five years old next month, and since June 20, 1939, members can point to a healthy, steady growth dedicated to the promotion of the airline dispatching profession.

From Guatemala to Alaska, from Ireland to Honolulu, and among 15 of the nation's domestic airlines, there are now more than 200 members in 35 councils. (CAB in 1941 listed 215 dispatchers within the industry). Contracts have been signed with United Air Lines, Western Air Lines, Northwest Airlines and Continental Air Lines, while negotiations are now underway with four other domestic carriers.

This progress report highlighted an interview at association headquarters in Burbank, Calif., with President Joe H. Gurr, who alternates his executive duties for the organization with his work as one of United Air Lines' veteran dispatchers.

"You can hardly say that our labor organization fits into the popular conception of a union," Gurr explained. "We're affiliated with the American Federation of Labor and have been since July 28, 1941. However, the association has full autonomy, which simply means that we carry out our own affairs without any outside influence."

"Our policy for both members and airline operators sums up to this: there is no problem which can't be settled across the table. By improving employee-employer relations, we have sought to increase efficiency and safety of the airlines as well as the efficiency and standards of the dispatching profession."

The association has worked closely with the CAA and CAB on dispatching and flight operations matters, giving the governmental agency benefit of practical experience.

### Recognizes Military Dispatchers

At present the group is recommending that credit for aeronautical experience be allowed military dispatchers toward obtaining CAA Aircraft Dispatcher Certificates. Two years of experience with the service plus 90 days apprenticeship in commercial operations is being recommended as a minimum requirement.

"In this way," Gurr pointed out, "we can expect to receive excellent newcomers from the military, men who will be qualified to step into expanding postwar air transportation."

An educational program, in which the latest technical developments affecting the profession are discussed in papers written by experts, is another activity.

Functioning of the association is carried out in a "grass roots" procedure. Council members elect chairmen for the individual councils and these chairmen, directed by vote of the members, serve as a board of directors. The officers of the association, who serve a two-year term, execute policies and programs evolved by the board.

Currently serving with Gurr are First Vice President Arthur Z. Gruitch, also

a dispatcher for United Air Lines, stationed in Chicago; Treasurer W. Donald Shugg, Western Air Lines, and five representative vice presidents, R. U. Van Dyke, PCA; A. A. Harlow, Braniff; C. W. Griffin, NWA; M. A. Deutsch, Pan American; and M. E. Carlin, UAL. The position of representative vice president was recently adopted to facilitate regional activities.

At recent elections for council chairmen, the following were named:

Name	Council No.	Air-line	City
S. A. McClellan	1	NWA	Seattle
M. C. Anderson	2	NWA	Minneapolis
A. J. Fosgate	3	UAL	Seattle
C. F. Hannum	4	UAL	Portland
M. E. Carlin	5	UAL	San Francisco
E. J. Delaney	6	UAL	Burbank
W. B. Mickle	7	UAL	Salt Lake City
G. E. Deininger	8	UAL	Denver
W. N. Edson	9	UAL	Chicago
G. D. Pritchard	10	WAL	Great Falls
O. A. Swanberg	11	UAL	New York
W. S. Upson	12	WAL	Burbank
S. E. Saville	13	WAL	Salt Lake City
S. C. Bassett	14	PAA	Seattle
J. N. Palmer	15	BNF	Kansas City
L. V. Barnard	16	NWA	Edmonton, Can.
H. I. Pedersen	17	BNF	Dallas
I. T. McKelvey	18	CAL	Denver



Three officers of ALDA are, left to right: W. Donald Shugg, treasurer; Joe H. Gurr, president; and M. E. Carlin, representative vice president.

J. C. Ennis	19	PAA	Kodiak, Alaska
M. C. Merrill	20	IAL	Cheyenne
J. E. Frost	21	PAA	Anchorage, Alaska
H. Earle	22	MCA	Minneapolis
M. A. Deutsch	24	PAA	Fairbanks, Alaska
A. S. Martin	25	PAA	Juneau, Alaska
C. E. Corron	26	TWA	Burbank
R. G. Flynn	27	AEA	New York
W. G. Story	28	CAI	New York
S. H. Lyons	30	NEA	Boston
J. H. Paist	31	MWA	Fairbanks, Alaska
L. W. Dymond	32	NAL	Jacksonville
R. U. Van Dyke	33	PCA	Washington, D. C.
L. J. Metcalf	34	TWA	Chicago
W. M. Prudden	35	PAA	New York

## P. O. Official Gives Tacit Endorsement Of Fourth Transcontinental Air Route

THE POST OFFICE DEPARTMENT, adept at handling all kinds of problems relating to mail, wrote a letter recently that created a ticklish handling problem in the Docket Section of the Civil Aeronautics Board.

Written by S. W. Purdum, Second Assistant Postmaster General, to C. Edward Leasure, Chief Examiner, CAB, the letter is considered by many as a tacit endorsement of the application of Northwest Airlines, Inc. for establishment of a fourth transcontinental air route. The problem of what to do with the letter arose because it was received two days after the hearing on the Milwaukee, Chicago, New York applications had ended.

The letter is dated March 8, is stamped "Received March 9" but was not actually docketed until March 29, when it was placed in the correspondence file of the Milwaukee-Chicago-New York Docket No. 629. The hearing on the applications ended the afternoon of March 7.

Purdum said the Post Office department "desires to state for the record" its opinion of the need of additional transcontinental air service. Because the letter was not received before the hearing was completed and because it was not properly offered in evidence, it has been held that it cannot be considered a part of the record. Interest of some of the other airline applicants in its contents indicate that the letter may yet become somewhat of an issue before the Board finally decides this case.

The complete text of the letter follows:

"RE: Northwest Airlines, et al. Docket No. 629, et al.

"In connection with the proceeding now being conducted by the Civil Aeronautics Board to determine the need for additional transcontinental air service, this Department desires to state for the record its opinion that a through northern route providing direct service from the east and by-passing the heavy traffic and frequent weather interruptions at Chicago would be advantageous to the Postal Service.

"In fact, the records of this office indicate that such a route has long been contemplated in the pattern of a complete airway system because of the major importance of the Seattle gateway."

Northwest, in the proceedings held early in March, sought an extension of its route from Milwaukee to New York. If its application were granted, this would give the country another transcontinental carrier. United, American, TWA, Colonial Chicago and Southern, PCA and Braniff were other applicants in the proceeding. At least one of the existing transcontinental carriers contended that if another cross-country route was required, it should be accomplished by extending existing transcontinental carriers from the Chicago area rather than putting a new carrier in the territory between Chicago and New York.



*The B.F. Goodrich Airplane of the month*

## BEECHCRAFT-AT-7

**FIRST OF ITS KIND** to be accepted by the Army Air Forces, the Beechcraft AT-7 Navigation Trainer is one of the most highly praised of all advanced trainers. Ask any Army navigator, and chances are you'll find he learned the tricks of his trade in this "school of the skies." It is fast, roomy, and can be easily handled by one man without a co-pilot.

Silvertown Tires, De-Icers, and Expander Tubes are among more than eighty B. F. Goodrich airplane products which are helping planes like the "Navi-

gator" do their important work so well. Saluting this top trainer and the loyal workers who build her, B. F. Goodrich selects the Beechcraft AT-7 as "Plane of the Month."

*In war or peace*

**B.F. Goodrich**

**FIRST IN RUBBER**



# Lightweight Rubber Fuel Cell

INCREASES SAFETY  
REDUCES MAINTENANCE



WHEN self-sealing rubber fuel cells were developed, their prime purpose was to protect against fuel leakage and fire caused by bullets. However, it was soon discovered that these rubber cells had another important advantage over the integral-type compartments formerly used—they gave considerable protection against other types of leakage. For example, in minor crashes, these rubber cells would resist shocks which could buckle and split open an integral fuel compartment.

This discovery suggested the use of rubber fuel cells as a solution to the fuel-leakage problems in non-combatant aircraft. It wasn't necessary to carry the extra thickness and special construction of the bullet-sealing cell to give airplane designers the other advantages of rubber containers. The lightweight B. F. Goodrich "bladder-type" cell meets the need for a flexible, leak-proof, non-self-sealing rubber unit. These B. F. Goodrich cells are actually rubber bags or bladders tailored to fit accurately into the spaces between wing supports. Each cell is equipped with fittings for filling and draining.

Integral-type compartments, on the other hand, are simply calked-off sections of the wings with connecting channels through which the fuel flows. Thus, the skin of the wing is actually the outside of the fuel tank, with every rivet and seam a potential source of leakage. Even in rigid wings there is constant strain on these metal junctions. This strain,

plus changing temperature, in time may cause rivets and seams to loosen. Although this loosening does not weaken wings structurally, it can result in considerable fuel leakage.

When this occurs, much needed fuel is lost in flight. As a result planes are grounded and flight schedules disrupted. And repair costs are high because the source of the leak is often hard to find and hard to repair.

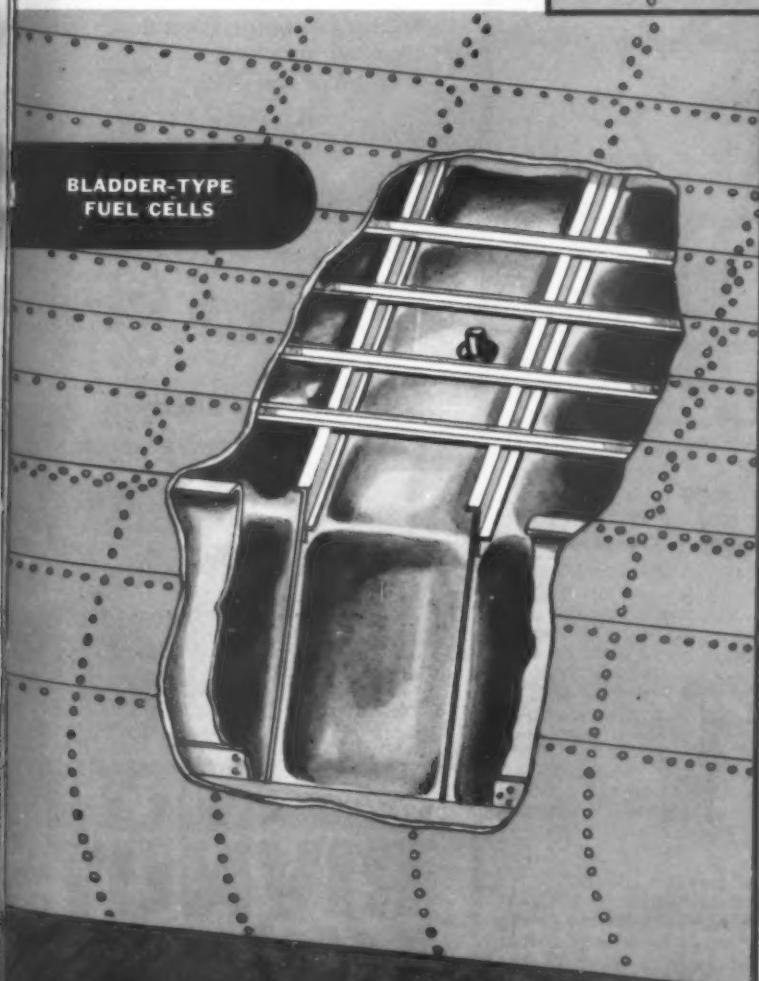
B. F. Goodrich "bladder-type" cells meet these problems and offer other advantages. They can be made in many sizes and shapes. Being flexible, they're easily installed and removed. No calking is necessary, thus saving an expensive building operation.

Since each airplane requires a custom-built product, engineers should write for complete information on each new installation. The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.

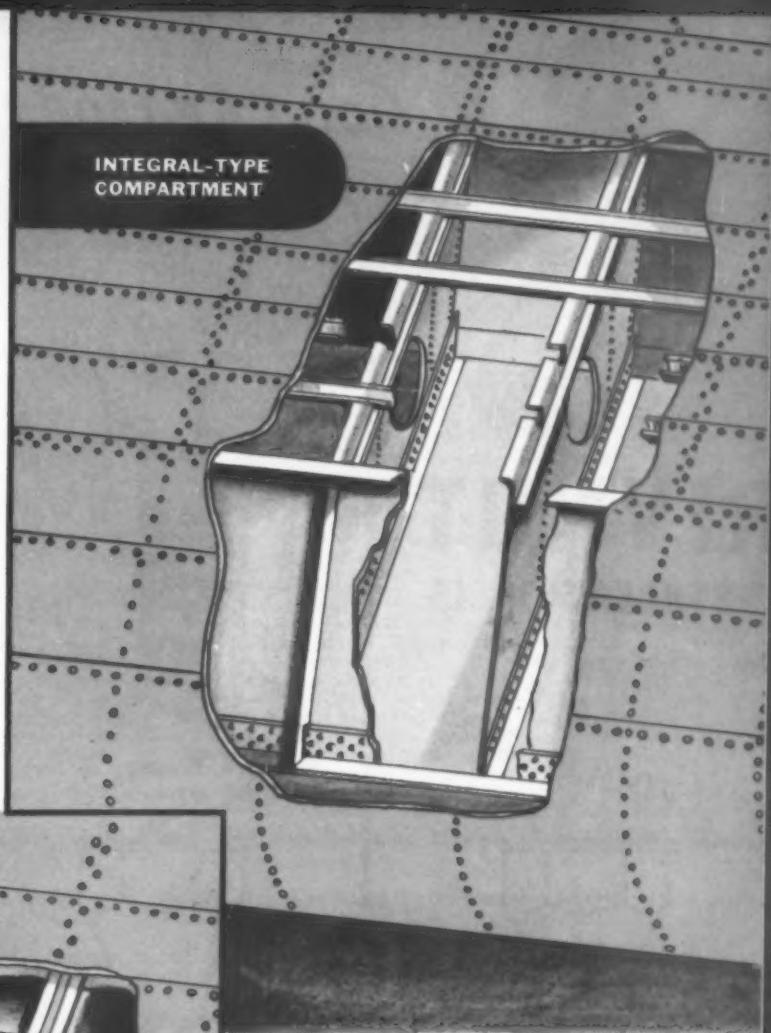
MAKERS OF B. F. GOODRICH TIRES AND OVER 80 RUBBER  
AND SYNTHETIC RUBBER PRODUCTS FOR AIRPLANES



# THESE SKETCHES SHOW YOU WHY BLADDER- TYPE FUEL CELLS ARE BETTER



INTEGRAL-TYPE  
COMPARTMENT



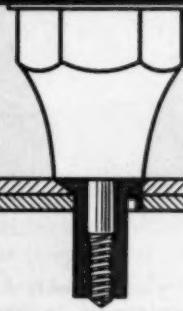
**WING SKIN** is actually outside of tank in integral-type compartment (above). Rivets and seams are under constant strain, even in rigid wings, and may loosen and cause leakage. Minor crashes can split seams wide open. B.F. Goodrich "bladder-type" cell (left) fits between wing supports as individual unit. Being flexible, the cell walls give with any normal wing movement and resist the buckling effects of minor crashes.

*In war or peace*  
**B.F. Goodrich**  
**FIRST IN RUBBER**



# 10 Good Reasons why you should Blind-Fasten with RIVNUTS

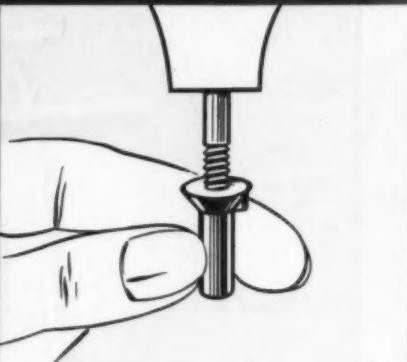
**RIVNUT**  
**INSTALLATION IS**  
**SIMPLE**  
**FAST**  
**FOOLPROOF!**



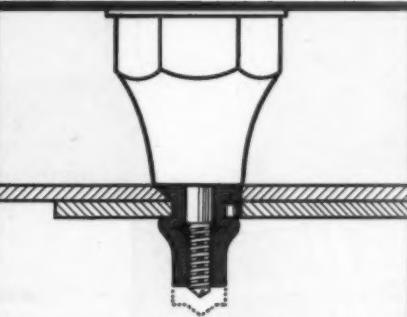
**2** Push Rivnut and pull-up stud into hole with Rivnut head firmly against, and at right angles to, the work.



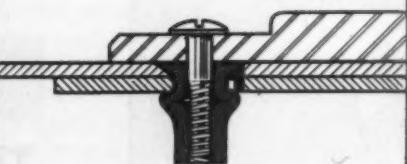
**4** Next, unscrew pull-up stud, leaving threaded core of Rivnut available for use as nut plate.



**1** Thread Rivnut all the way on to pull-up stud of heading tool.



**3** A squeeze on the tool lever retracts the pull-up stud slightly, causing a lateral bulge upset of the Rivnut.



**5** Attaching accessory is easy now—just screw it on. Rivnut threads grip screws firmly after upset.

Here's a combination of advantages no other blind fastener can match

- Dual use—can serve as blind rivet or nut plate or both
- Simple, one-piece construction
- Unusually wide bearing surface
- Requires very small hole
- Forms a compression fit
- Speed of installation
- Economical
- Can be used as received
- Wide range of types and sizes
- Available with key to increase torsion resistance

## Data Book . . . FREE!

Get the whole story. Book contains facts you'll want on types, sizes, grip ranges, strength and weight figures; also facts on heading tools available. For your copy send request (on company letterhead, please) to The B.F.Goodrich Company, Aeronautical Division, Akron, Ohio.



**B.F Goodrich**  
**RIVNUT**

IT'S A RIVET...IT'S A NUT PLATE

## Women in Air Transport

(This is the fifteenth of a series of articles on women who are doing an outstanding but little publicized job for the U. S. airlines.)



ONE of the outstanding women in the traffic departments of the domestic airlines is Kay Boddé, district traffic manager of Northwest Airlines in New York.

Back in 1928, when commercial aviation was in its infancy, Kay Boddé started her business career with Woods Brothers Corp. in the sale of aviation stock. She next took a job aiding in the development and building of Fairfax Airport in Kansas City, Kans. In 1930, after the airport was completed she joined TWA in Kansas City, working under F. G. Wilson, then vice president and treasurer.

Five years later Miss Boddé went to work for P. & E. Corp., New York aircraft brokers, as executive secretary, and three years after that joined American Airlines, working under Jack Robinson, agency manager.

In August, 1941, she was made manager of the travel agency department of Northwest Airlines. When Gordon McLaren, NWA district traffic manager in New York, entered the Navy in 1942, Miss Boddé took over his duties.

Miss Boddé has traveled thousands of miles over the domestic airlines, having flown in Curtiss Condors, tri-motored Stinsons, Fords, Fokkers, Lockheed Electras, DC-2s, DC-3s and Stratoliners. She now represents NWA as a member of the 41-74 Club, NAA, ASTA and the New York Board of Trade's aviation section.

## Air Freight Course Offered

A new course in air freight, "developed in collaboration with leading airline officials" is now being offered by the Academy of Advanced Traffic, 299 Broadway, New York City. A six-months training program, divided into a basic three month semester and an advanced semester is provided.

# Airline Commentator

One of the big news events in these here parts last fortnight was the arrival in Washington of TWA's Constellation. . . . Six hours, 57 minutes and 51 seconds from Burbank to Washington isn't exactly loafing. . . . Incidentally, the press had a terrific time convincing the Army that the flying time should be allowed to appear in print. . . . Army press relations officers had stated that publication of official time was forbidden—this despite the fact that the departure time from Burbank had been published in almost every paper in the country, and anyone with a reasonably accurate wristwatch could time the arrival. . . . However, the official time did appear in print (somebody probably had his wrist slapped) so we're using it here. . . .

Anyhow, Howard Hughes and Jack Frye weren't sure if they could tell the press anything. . . . So we decided to get some quotes from other persons aboard. . . . First we cornered Leo Baron, TWA's publicity director. . . . Leo thinks the Constellation is a wonderful airplane. . . . It's so fast, he pointed out, that he only had time to lose \$18 in a poker game. . . . With his little slide rule, calipers and sextant, he figured out that if he had been on an ordinary transport, which is much slower, he would have had time to have lost \$86.42. . . . It seems to have been a very weird poker game, because everyone we talked to insisted he lost. . . . S. J. Solomon, chairman of the Airline Committee on U. S. Air Policy, also made the trip. . . . Sam's comment—and this is exclusive—was: "I was the only completely unessential person aboard". . . . And now, having given you these shipside interviews (which were much more fun than trying to wrestle with "censorship") we respectfully turn the Constellation over to the Army. . . .

It seems that a new Pennsylvania-Central cargo handler at Youngstown was busy unloading one of the company's planes when a man with a PCA lapel insignia stepped up and offered to help. . . . Seeing the insignia, the cargo handler said okay. . . . When the job was done, he turned to the operations agent and said, "Wonder who that guy was?" . . . "Oh, that was Monro—he's the president of the company," answered the agent. . . . Well, with the draft getting tougher and tougher, Mr. Monro may have to unload cargo regularly before long.

We have a bone to pick with some of our airline friends. . . . When one of them comes to town and you ask him when he got in, he invariably says—nonchalantly—"Oh, I came in on 16". . . . This magic number automatically makes the wheels in your brain go around something like this: "Let's see, now—trip 16 leaves Chicago at 12 o'clock and gets in here at 4. Or is that trip 22? Or maybe it leaves at 4 and gets in at 12"? . . . So you generally end up not knowing whether your friend arrived today or last Thursday. . . . The same goes for departures. . . . If he says he's going out on 17, it might be anytime between now and next Thursday, as far as we're concerned. . . . Now we realize that reservations personnel have to deal with trip numbers constantly. . . . But you guys who never saw the backside of a traffic counter, won't you please say, for the benefit of us uninitiated who don't carry a copy of Universal Airline Schedules around in our back pockets, "I came in on United today at 5:45" . . . This goes for some of our very best friends. . . . But it still goes. . . .

Smythe Gambrell, Eastern Air Lines' attorney, has come up with a suggestion. . . . He was arguing a case before the CAB a couple of weeks ago, one of his purposes being to convince the Board that a through one-plane service is much better than a connecting service. . . . After the war, he said, CAB examiners and lawyers dealing with air line route cases should be required to travel at least 1,000 miles a month on the airlines, so that they become familiar with through service, connecting service and a lot of other things. . . . We can't quite see CAB cheerfully furnishing funds for personnel to travel a thousand miles a month, but nevertheless the idea is intriguing. . . . There are too many people in CAB, dealing with airline problems every day and in some cases maybe helping formulate important policies, who haven't ridden the airlines enough—if at all. . . . And it isn't exactly their own fault, because you don't support a wife and two kids and take airplane jaunts on some of the government salaries. . . . Has anyone got any suggestions for an "education" program? . . .

Mid-Continent Airlines has just come out with Vol. 1 No. 1 of a new house-organ called "Wing Tips". . . . It's a very attractive job and we send our congratulations to Editor Frank Green. . . . If other issues are as good as the first he'll have a publication of which to be proud. . . .

Eric Bramley

## TRANSPORT

# Quick Market for 1,700 Transport Planes Shown in Chamber's Survey

AIRLINES of the United States will purchase 1,700 new transport planes valued at \$512,500,000 within two years after the war ends, E. Earl Lothrop, manager of the Research and Statistical Department of the Aeronautical Chamber of Commerce, predicted last fortnight. This compares with a total of 350 planes operated by commercial airlines when the war started.

"Major airlines are unlikely to be willing to accept wartime transport planes for conversion to competitive commercial aviation," Lothrop told a Harvard Business School Alumni meeting at the Harvard Club. "They would prefer to await newer, more efficient models. These can be built at costs in line with those of converted planes. Any wholesale utilization of military craft for commercial purposes for a two or five year term, would be a major tragedy for our commercial airline system and the aircraft manufacturing industry," Lothrop stated.

"Of the 1,700 new airplanes which are expected to be delivered within 18 to 24 months after the war ends, 100 will be for our international airlines and 100 will be exported," Lothrop estimated.

"The most expandable market for the plane manufacturer is the private flying field," he said. "However, only 9,500 new private planes can be expected during the two years following the war's end, including a doubtful total of 2,500 helicopters."

The total forecast plane market for

the five years after hostilities cease represents a considerable expansion for American aircraft over pre-war years. It calls for 2,925 commercial passenger craft, 2,875 cargo planes and 30,000 military planes. No attempt is made to estimate personal plane requirements for this period."

## Athens Stop Recommended for All American Aviation

CAB Examiner Albert F. Beitel has recommended to the Civil Aeronautics Board that the application of All American Aviation, Inc., for a pickup airmail stop at Athens, Ohio be granted.

After four of the carrier's witnesses had testified to various questions touching on public convenience and necessity, much of it centering around the importance of Athens in a trade area of more than 20,000 people. Examiner Beitel announced that he would recommend approval of the application.

If the Board concurs in Beitel's recommendation, Athens, through a re-arrangement of the route, will become an intermediate point between Parkersburg, W. Va., and Pomeroy, Ohio.

Austin M. Zimmerman was counsel for the carrier, and Melvin S. Cohen served as public counsel.

... After 400 Hours



This B. F. Goodrich Co. self-starting tire is shown after 400 hours of service with Pennsylvania-Central Airlines. Fitted with flexible vanes or flaps which are built into the sidewall, the tire starts spinning before it touches the ground, thus cutting down the 'drag' on landing. Shown inspecting a 400-hour tire on a PCA plane at Washington National Airport are Fred Marshall, left, of the Goodrich company, and George Anderson, a PCA pilot.

## 12 Fixed-Base Operators Consolidate; File For 64 Routes Covering 23,621 Mi.

Twelve fixed-base operators, all of whom had previously filed individual route applications with the Civil Aeronautics Board, have combined into one big operating company, known as Consolidated Airlines. The new company recently filed an application for 64 air transport routes, covering 23,621 route miles, and has asked CAB to subordinate the individual applications to the all-inclusive application.

Routes asked for cover a considerable portion of the mid-central and mid-western part of the United States. All of them were briefly outlined in previous issues of *American Aviation*.

Officers of the company are: William A. Ong, president; Leslie H. Bowman, Wilfred M. Post, Jr., Charles W. Hirsig, II, vice presidents; F. C. Anderson, treasurer; W. Haley Reed, secretary and general counsel and Helen C. Steeg, assistant secretary. The consolidated company, with offices at P. O. Box 214, Kansas City, Mo., states it has a net worth of two million dollars and lists the number and type of personnel as follows: executives, 54; pilots, 341; mechanics, 224; mechanics' helpers, 124; service employees, 49; management and sales, 67; offices, 104 and miscellaneous 193—a total of 1,156.

The new application covers individual applications filed previously by the following firms:

Docket No.	Firm Name and Address
1091	Summit Airways, Inc. Laramie, Wyo.
1118	Central States Aviation Co. Sioux City, Ia.
1208	Aircraft Sales Co. Inc. P. t. Worth, Tex.
1209	Roscoe Turner Aeronautical Corp. Indianapolis
1210	Ong Aircraft Corp. Kansas City, Mo.
1211	Iowa Airplane Corp. Des Moines, Ia.
1253	P-T Air Service, Inc. Hayes, Kans. & Roy O. Mahon (jointly) Dodge City, Ia.
1292	Kansas Aviation Co. Manhattan, Kans.
1293	E. W. Wiggins Airways, Inc. Columbia, Mo.
1319	Springfield Flying Serv., Inc. Springfield, Mo.
1333	Buffalo Aeronautical Corp. Buffalo, N. Y.
1334	Wilfred M. Post, Jr. Allentown, Pa.
1363	The Kratz Corp. St. Louis, Mo.

## CAB Calendar

May 1—Hearing on applications of American, Eastern, Colonial, PCA, UAL, Page Airways, Inc., Union Airways, Inc., Hylian Flying Service, Inc., for routes between Washington, D. C., and Canada. (Docket 600 et al).

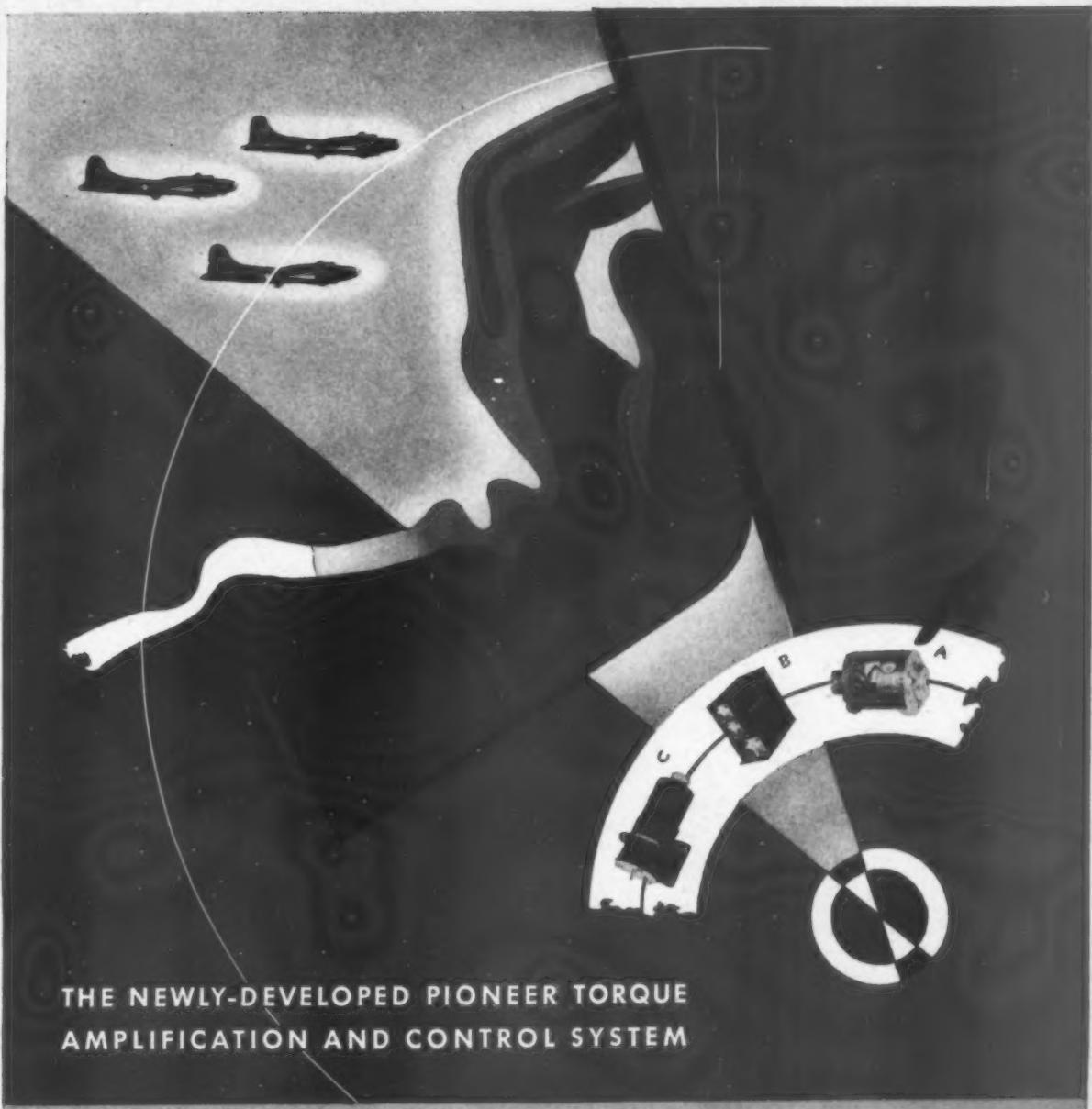
May 1—Pre-hearing conference on applications of Hawaiian, TWA, Matson Navigation Co. and Northwest for routes from Los Angeles, San Diego, San Francisco, Portland, Seattle to Honolulu. (Docket 851 et al).

May 1—Pre-hearing conference on Pan American Airways, Inc. application for approval of its stock in China National. (Docket 1351).

May 8—Hearing on application of Pan American Airways, Inc. for Board approval of its control of Aerovanes de Mexico, S. A. (Docket 875).

May 11—Pre-hearing conference on applications for routes in Rocky Mountain area. (Docket 152 et al).

June 12—Hearing on applications of Eastern, Delta, PCA, State Airlines, Air Transport Corporation, American, Carolina Scenic Coach Lines, South East, Virginia Central, National, Seaboard, Colonial in Great Lakes-Florida cases. (Docket 570 et al).



## THE NEWLY-DEVELOPED PIONEER TORQUE AMPLIFICATION AND CONTROL SYSTEM

Magnifies minute forces . . . applies amplified torque remotely

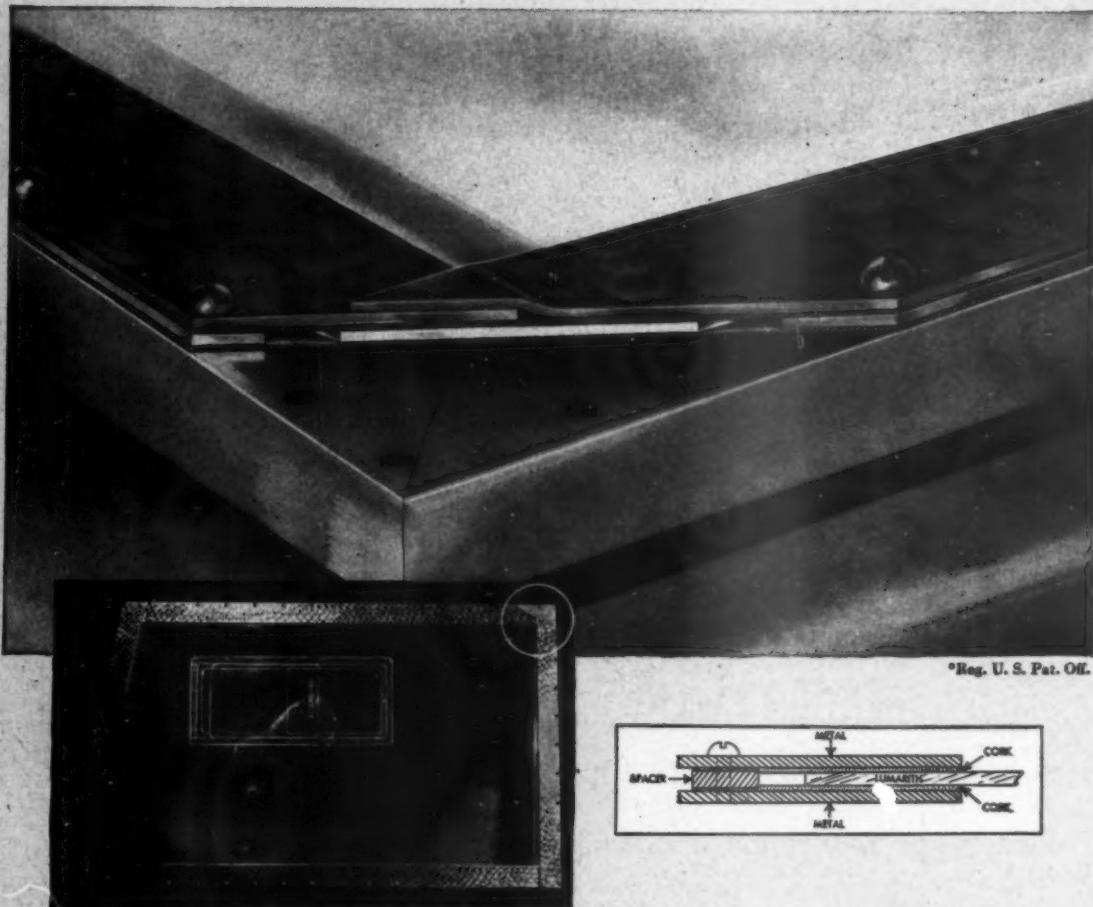
Pioneer Remote Torque Amplification and Control Systems electronically amplify a small motivating force (manual, electrical or mechanical) and apply it at a remote location to accomplish such tasks as controlling aircraft main engines, operating rudders, elevators, flaps, ailerons, or to perform any function, on or off an airplane, requiring positive straight-line or rotary motion to effect an accurate adjustment. These compact, lightweight systems consist of an Autosyn or Magnesyn transmitter (A), which is motivated by the prime mover; an amplifying assembly (B); and a torque unit (C), comprising a coupling Autosyn and low-inertia motor. Write for booklet. Eclipse-Pioneer Division, Teterboro, New Jersey.

"Pioneer," "Autosyn" and "Magnesyn" are trade marks of Bendix Aviation Corporation

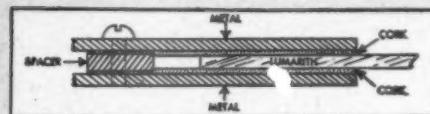
# PIONEER INSTRUMENTS



# This FULL-FLOATING WINDOW MOUNTING of Aero-Quality LUMARITH\*



\*Reg. U. S. Pat. Off.



## Is Considered Ideal by Many Engineers

The full-floating type mounting, here illustrated, has many advantages to recommend its use for cellulose acetate plastic panel mountings. It eliminates the drilling of bolt holes, and the attendant difficulties of locating them properly. Replacements are easier to make.

Depth of channel is determined by taking into consideration the maximum possible expansion and contraction of the Lumarith panel, and the channel support depth required under all atmospheric conditions. Spacer thickness, which is important, is gauged

so as to insure a firm grip of the panel and yet permit expansion and contraction movement.

The Technical Service Department of Celanese is ready at all times to give assistance to manufacturers on the subject of plastics—either molded or sheets, rods, tubes, films or foils. You'll want, of course, a copy of the second edition of the Lumarith Mounting Book. Let us know where to send it. Celanese Celluloid Corporation, The First Name in Plastics, a division of Celanese Corporation of America, 180 Madison Avenue, New York City 16.

# New York-South Africa Route Asked; Few Other Applications

**SEAS SHIPPING CO., Inc.**, of 39 Cortlandt St., New York City, filed an application with the Civil Aeronautics Board last fortnight for a 9,000 mile air route from New York to the Union of South Africa.

The company, which operates the Robin Line, asked a route via the intermediate points of San Juan, Port of Spain, Belem, Natal, Ascension, St. Helena, Windhoek, Walvis Bay, and co-terminals—Johannesburg and Capetown. The applicant proposes to operate one flight each week in both directions according to S. J. Maddock, vice president of the company. The airline would operate generally over the same routes now served by its steamships. (Docket 1360)

This was another exceptionally light two weeks period for the Docket section of CAB as far as new applications are concerned. Four applications were filed. Two of these, Consolidated Airlines and Ryan School of Aeronautics, are described in another part of this issue. A brief description of the other two follows:

#### Kratz Corporation

This applicant, located at Kratz Airport, St. Louis 21, Mo., has filed an application with CAB for eight circular local, feeder and pickup air transport routes, all of which would originate and terminate in St. Louis. Principal cities on the outer perimeter are: Moline, Danville, Terre Haute, Vincennes, Evansville, Paducah, Caruthersville, West Plains, Springfield, Jefferson City, Columbia and Kirksville. There are 3,357 miles of route involved. The company has 23 pilots and 24 mechanics employed at the present time.

#### PAA Planes Roll Up Total Of 6,883 Trans-Oceanic Flights Since Pearl Harbor

A total of 6,883 trans-oceanic crossings was completed by Pan American Airways planes in the period between Pearl Harbor and last March 31, the airline announces. This total was compiled through contract services and special missions for the Air Transport Command, the Naval Air Transport Service, and through scheduled operations over PAA's civil air routes serving 46 countries and colonies.

Crossings of the North and South Atlantic, including special war missions, totaled 4,209. Of these 3,491 were made in the service of the ATC, 673 were made for the NATS and by the Clippers on regularly scheduled runs between the U. S. and the British Isles and Europe, and 45 crossings were special mission flights.

During the same period Pan American completed 2,674 crossings of the North Pacific between the U. S. mainland and Hawaii, and to and from the South Pacific war theater. Between the mainland and Hawaii, Clipper schedules and crossings made with naval transport aircraft operated for the NATS totaled 1,647. A total of 1,027 flights were made for the NATS over the long run to the South Pacific.

Aircraft to be used has not been specified beyond "suitable types which may be available." David W. Kratz is president of the firm and W. Haley Reed, of Kansas City, Mo., is counsel for the company. (Docket 1363)

#### Winifred L. Shefferly

Applicant of 16616 Biltmore Ave., Detroit 27, Mich., filed for a certificate to operate an air taxi service in Michigan in charter, non-scheduled operations. Applicant calls attention to surface traffic congestion in the Detroit area and expresses the belief that the helicopter, when commercially available, will fill a growing transportation need. (Docket 1365)

#### Airplane Gas Station Planned by New Jersey Concern, CAB Reveals

Helicopters may not be commercially available for a few years as some industry leaders claim but when they do start operating, Twin Service Stations, of West New York, N. J. hopes to be ready with a specially built gas station to serve them.

The company filed an application with the Civil Aeronautics Board two weeks ago for permission to operate a service station for "helicopters, autogiros and other lighter-than-air and heavier-than-air machines and vehicles of all kinds, types and descriptions."

Applicant now operates a gas station for surface vehicles, and expressed an intention to build a meteorological and radio communications station, operated by trained personnel, if permission is granted to service airplanes in the postwar era.

**PENNSYLVANIA-CENTRAL AIRLINES** carried 831,578 pounds of mail during January and February, an increase of 37.68% over the 604,004 pounds carried during the same two months of 1943. During the same two months PCA recorded a 55.34% increase in

express poundage—626,433 pounds against 403,272 pounds. PCA's planes operated 8,163,135 revenue passenger miles during the two-month period, an increase of 44.14% over the 5,663,224 revenue passenger miles flown during the first two months of 1943.

#### How C. & S. Saves Weight in Wartime



Pictured above are some of the items which Chicago & Southern Air Lines has removed from its airplanes to increase the loads of wartime mail, passengers and express they can carry. The following items, some of which are shown above, have been removed: two engine covers, saving 20 lbs.; 20 passenger foot rests, 8.25 lbs.; pilot's jump seat, 8.25 lbs.; plate warmer, 3.25 lbs.; two wheel fairings, 2.85 lbs.; tail strut fairing, 2.4 lbs.; two baggage compartment cross tubes, .8 lbs.; change to lighter rugs, 30 lbs.; two thermo-pete units, 3 lbs.; righthand auxiliary gas tank and fittings, 97.5 lbs.; commissary equipment, 121.7 lbs.; magazine and paper racks, 5.5 lbs.; change to lightweight seat upholstery, 23 lbs.; change to plastic windows, 14 lbs.; change engine inlet oil filter, 3.5 lbs.; replacing floor boards, 10 lbs.; replacing oxygen bottle, 17 lbs.; and lightweight seat mechanism, 38 lbs. Total weight saved is 416 lbs.

## Tom Braniff's 'Trade Area' System Would Link 35 Cities, Towns

T. E. Braniff, president of Braniff Airways, Inc., recently laid before the business men of Denver his company's plan for the formation of a "trade area" airline system which would link 35 cities in five regional states.

Under the plan, the business men of Denver would be asked to subscribe \$250,000 of the \$500,000 that would be required to launch such an enterprise. Mr. Braniff said his company would obligate itself for the other half. Each in turn would attempt to dispose of one-half of the stock to business men in the cities served by the airline system. This, he said, would assure a healthy cooperative interest in the development of a local air transport system.

The Braniff plan of a trade area system was first announced at the hearing on Local-Feeder-Pick up applications conducted by the Civil Aeronautics Board last fall.

The proposal, which has not yet been submitted as an application to CAB, would serve cities in Colorado, Nebraska, Wyoming, Kansas and New Mexico. Mr. Braniff told his audience at the Denver club that the system would operate twin-engined, two-pilot, transport planes carrying 10 passengers and 3,000 pounds of freight in addition to mail. Six planes would be necessary to give service twice daily to the 35 cities in the system.

Cities to be included in the system were announced as follows: Colorado: Fort Collins, Greeley, Sterling, Wray, Fort

### Gets a Bite

Thirty-six hours after T. E. Braniff suggested formation of a similar trade area airline to the business men of Oklahoma City April 19, a \$500,000 corporation with \$100,000 of paid-in stock was subscribed under the corporate name of Oklahoma Airways. Tentative plans call for a service to handle passengers, mail, and express from virtually all the major points in Oklahoma, with a southeastern leg serving such points as McAlester, Hugo, Ada and Idabel. The following officers will be recommended to serve the company without pay until the Civil Aeronautics Board and the Securities & Exchange Commission has either granted or rejected the plan: Fred Jones, president; Clarence Page, vice president in charge of operation; W. M. Morgan, vice president in charge of business relations; Mart Brown, secretary; Virgil Brown, treasurer, and directors: Richard Crutcher, Harry Wimberly, Altus Doyle Cotton, Gus Delaney and Walter Bowman.

Of the amount to be paid in immediately, Mr. Braniff pledged \$25,000, city investors \$25,000 and \$50,000 is to be offered to anyone in the area to be served. Braniff has also agreed to pay half the organization costs which will amount to about \$5,000.

### Mr. Braniff and Airline's New Directors



The president of Braniff Airways, Inc., is shown, left, with four newly elected directors of the company. Left to right: Roger J. Whiteford, Washington, D. C.; George A. Butler, Houston, Tex.; Ferdinand Eberstadt, New York City; and Fred Jones, of Oklahoma City and Tulsa.

Morgan, Glenwood Springs, Grand Junction, Salida, Montrose, Gunnison, Durango, Alamosa, Trinidad, Walsenburg, Pueblo, Colorado Springs and Leadville; Nebraska: Chadron, Alliance, Sidney, Scottsbluff,

Ogallala, North Platte and McCook; Wyoming: Cheyenne, Laramie, Rawlings, Rock Springs, Casper and Douglas; Kansas: Goodland and Colby; New Mexico: Raton and Farmington.

## Western is Ready For Los Angeles-San Francisco Run

Western Air Lines, which two weeks ago observed its 18th anniversary, expected to inaugurate service over its newly awarded route between Los Angeles and San Francisco May 1.

Leo H. Dwerkotte, executive vice president, stated that three daily round trip schedules, all of them two-hour, non-stop flights, would be operated with Douglas DC-3 planes. He said schedules had been arranged for morning, afternoon and evening departures and arrivals in both cities.

Roy Backman, former district traffic manager, is the new San Francisco district traffic manager with offices at 237 Geary Street. A branch ticket office will be maintained at the St. Francis hotel.

Operations offices at Mills Field are under the supervision of Joseph L. O'Neill, formerly in charge of all stations on the Airline's division from Salt Lake City to Lethbridge.

Western obtained this route after the hearing of applications in the widely publicized California North-South cases. In its first decision in this case, the Civil Aeronautics Board denied Western's application. Following re-argument and reconsideration, the Board reversed itself and granted Western the route and at the same time enunciated what has been regarded as a new policy based on the desirability of competition, on a point to point basis, if the traffic potential warrants it. United Air Lines and Transcontinental & Western Air also operate between Los Angeles and San Francisco.

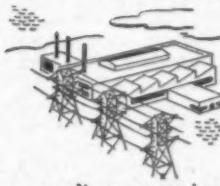
### Traffic

UNITED AIR LINES' revenue passenger miles for March totaled 31,914,000 as against 27,522,075 for the corresponding month last year, a gain of 16%. Airplane miles totaled 2,101,850 as compared with 1,729,105 in 1943, an increase of 22%.

CANADIAN PACIFIC AIR LINES reports that the number of passengers carried during the first three months of this year totaled 22,463, an increase of 63% over the same period of last year. Goods carried totaled 2,430,640 pounds, a decrease of 16%, and mail amounted to 494,278 pounds, a decrease of 22% from the preceding year. Passenger miles flown amounted to 6,229,600, an increase of 60%, and mail pound miles were 206,288,000, reflecting a decrease of 7% from last year.

DELTA AIR LINES carried 32.5% more passengers during the first quarter of 1944 than in the first three months of 1943. Revenue passenger miles rose from 8,859,600 to 12,807,089 for the quarter, an increase of 42.3%. Revenue passengers totaled 32,627 as compared with 24,615, an increase of 32.5%. The system load factor averaged 89.7% against 86.5% for the first quarter of 1943, while the average passenger haul increased 7.5% from 360 miles to 387 miles. Mail pound miles totaled 369,732,514, against 266,432,889, an increase of 46.3%. Express pound miles have totaled 58,619,360, as compared with 45,555,799 for the 1943 quarter, an increase of 28.7%.

PAN AMERICAN AIRWAYS announces that the addition of a twice-weekly round trip seaplane service over the 1,150-mile route between Miami and San Juan provides a 14% increase in frequency of local flights between the U. S. mainland and Puerto Rico. PAA also announces that international air passengers between the United States, Mexico, and numerous points in Latin America have been provided an additional service by newly effected arrangements providing direct connection at Nuevo Laredo, Mexico, between planes of Compania Mexicana de Aviacion (PAA affiliate) and Barniff Airways. PAA reports that Tarija, Bolivia, has been provided with air transportation by extension of the weekly service of Lloyd Aero Boliviano.



Swift-flowing torrents of water . . . whirling turbines . . . rivers of surging electrical energy.

That's a story of the powerful new South which is sending mountains of arms and materials to fighting men the world around. And that's a preview of a postwar South, a land of vast and varied resources waiting to be turned into countless peacetime products—by means of man's ingenuity and the South's unsurpassed power reserves. Actually, the South's hydro-electric power potentialities exceed those of

any like section of the nation. That means much to the industrial planners who can hear the humming song of this Southern power.

And it means much to Delta Air Lines, which has been serving the great South for two decades. Time-conserving, war-speeding travel is the first concern of Delta today. But every spare moment is devoted by Delta to plans for the extension of present routes to meet the needs of the South's expanding industrial economy . . . plans for finer and swifter air transportation for a still greater South, fulfilling its destiny as a major source of power in the world's greatest nation.

THE AIRLINE OF THE SOUTH . . . SERVING A LAND OF POWER AND PROMISE



## Oklahoma City's 'Isolation' Cited In CAB Hearing

The isolated position of Oklahoma City with reference to transcontinental air routes formed the basis of most of the testimony and controversy in a recent route hearing on Oklahoma area cases before CAB Examiners Lawrence J. Kosters and Berdon M. Bell.

Transcontinental and Western Air, the principal applicant in the proceeding, asked for a route between Kansas City and Amarillo, via Joplin, Tulsa and Oklahoma City. The application of American Airlines, Inc. requesting that its temporary certificate to serve Joplin be made permanent was consolidated for hearing purposes. Braniff Airways and Continental Air Lines intervened because of the serious diversionary effect on their operations which they claimed would result if either TWA or American were certified into the cities named.

Charles L. Gallo, assistant to the vice president in charge of traffic for TWA, told the hearing that the area represented by his company's application was isolated as far as modern means of transportation is concerned. Calling attention to the fact that Oklahoma City not only is deprived of the benefits of one carrier transcontinental air service, Gallo said the traveling public of this area is further handicapped because of the necessity of making transfers at St. Louis or Chicago in cross-country rail travel. He said the area needed east and west transcontinental air service and that TWA was in the best position to provide this service.

Witnesses for American testified of successful operations into and through Joplin under the authority of a temporary certificate which was issued on the basis of war needs. American's application to serve Oklahoma City and Tulsa on one leg of its transcontinental flights was heard several weeks ago, and the examiner's report is now being prepared.

City witnesses—I. G. Bentley, traffic manager of the Oklahoma City Chamber

### WAL Re-elects Coulter

William A. Coulter was re-elected president and chairman of the Board of Directors of Western Air Lines at the annual stockholders meeting. Coulter was first elected president in 1941 after playing a prominent role in aviation since 1934.

Other directors who held office during 1943 and were re-elected for this coming year are: L. H. Dwerkotke, vice president; Harold P. Fabian, senior member of the legal firm Fabian, Clendenin, Moffat and Mabey of Salt Lake City; Stanley W. Guthrie, senior member of the legal firm Guthrie & Darling of Los Angeles; and George Albert Smith, president of the Latter-Day Saints Council of Twelve Apostles of Utah.

Following the stockholders meeting, the directors elected the following officers: William A. Coulter, president; L. H. Dwerkotke, executive vice president; Charles N. James, vice president of operation; Thos. Wolfe, vice president of traffic; Paul E. Sullivan, secretary-treasurer; and J. J. Taylor, assistant secretary-treasurer.

### Attend REA Conference in New York



Pictured at New York during their recent conference on current and postwar problems are these Railway Express Agency executives and operating officials, left to right—P. H. Cummings, air traffic executive; M. G. Lickteig, E. L. Head, V. M. Grimsley, all managers, air express; C. R. Graham, vice-president; A. L. Hammell, vice-president and chairman; J. M. Shanaphy, executive representative; C. A. Frey, vice-president, traffic; K. N. Merritt, general manager, public relations; C. G. Peterson, chief engineer; and R. W. Starkey, manager, air express.

of Commerce, Charles G. Hayes, for Joplin and L. D. Melton, for Tulsa, all testified of the need for additional air service for their respective communities.

Counsel for Greyhound Corp. of Chicago intervened to file a request that the Board refrain from granting certificates involving local service. However if the Board decided local service is necessary, Greyhound asked that temporary certificates be issued so that the rights of other parties, who have applications on file for local service in the area, might be protected.

E. Franklin Kell was public counsel in the case.

### National Railway Labor Panel Approves Salary Scales in WAL-ALDA Case

The National Railway Labor Panel approved on April 7 the salary scales outlined in a working agreement signed February 6 between the Air Line Dispatchers Association and Western Air Lines, Joe H. Gurr, President of ALDA, advises *American Aviation*. The scales were made retroactive to October 20, 1943, date of the original submission.

On March 16, a working agreement was signed between Northwest Airlines, Inc., and their flight superintendents (flight dispatchers) represented by ALDA. The agreement was originally submitted to Northwest last July and its terms are made retroactive to August 1, 1943. Negotiations were conducted by R. K. Ferguson, vice president, operations; Norris D. Jackson, director, labor relations; and C. Emerson Woodward, NWA legal department. Frank B. Zoelle of ALDA acted as chairman, C. W. Griffin and W. M. Sheets were members of the contract committee. Zoelle was appointed to act as personal representative for Gurr. The agreement was signed in Burbank, Cal. Joint submission for approval of the salary scale has been made to the National Railway Labor Panel.

### Draft Rules Protect Key Airline Personnel in Under-26 Group

The airlines will be able to retain all key personnel under 26 years of age, according to interpretations of the deferment policy announced last fortnight by Maj. Gen. Lewis B. Hershey, Director of Selective Service.

When Gen. Hershey's telegrams to state Selective Service directors were released on Apr. 11 they listed as eligible for deferment "Airlines—flight personnel—ground personnel only outside the Continental United States." Many persons both in and out of the industry at first interpreted this as meaning that only flight personnel and ground personnel outside the U. S. would be deferred.

Clarifying this, however, Col. E. S. Gorrell, president of the Air Transport Association, explained that all flying personnel under 26 (whether in or out of the U. S.), including pilots, co-pilots, radiomen, navigators and engineers, will be deferred. In addition, key ground personnel outside the U. S. will not be called.

It was also learned that the airlines will be able to retain other necessary men under 26. These men (in such jobs as mechanic, lead mechanic, senior mechanic, crew chief, foreman, meteorologist, dispatcher and technical supervisory personnel) will be drafted by the Army or Navy, put in the enlisted reserve and turned back to the airlines.

This procedure in effect enables the airlines to retain all necessary personnel under 26, Col. Gorrell said.

UNITED AIR LINES reports that additional equipment from the Army has enabled it to increase its daily plane mileage effective April 15, to 77,000 miles, or approximately 28,000,000 miles yearly. Included is a new round-trip flight from Seattle, Portland, and other Pacific Northwest cities to Chicago, Cleveland, New York, and intermediate cities.

*Coiled to Strike*



Engines roaring, an American Bomber stands poised on her runway . . . literally "coiled to strike" at the enemy. For the steady beat of her mighty engines depends on this coil . . . the coil of a Bendix-Scintilla\* Aircraft Magneto. In this one vital part . . . precisely designed, tested and re-tested . . . thousands of careful turns of fine wire step up voltage from 18 to 18,000 . . . produce, with unfailing dependability, powerful, precisely timed sparks for engine ignition.

Bendix-Scintilla is proud of the many contributions its engineers have made to the advancement of air-

craft ignition...contributions destined to play as vital a role on the sky transports of tomorrow as they do in the battle planes of today.

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Bendix-Scintilla Aircraft Magnets,  
Harnesses and Switches, vital members of  
"The Invisible Crew," are standard equipment  
for the major aircraft engine manufacturers, including:  
Allison • Jacobs • Continental • Lycoming  
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Whitney • Warner • Packard • Ranger  
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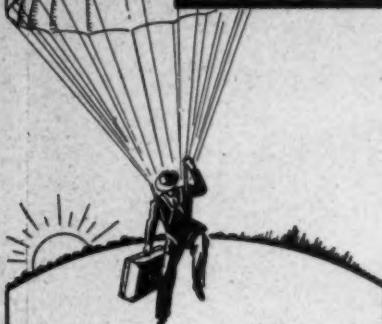
SIDNEY, NEW YORK

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## TRANSPORT

### 7 Good Places to STOP



- 1 Atlanta, Ga. ★ The Ansley
- 2 Savannah, Ga. ★ The Savannah
- 3 Birmingham, Ala. ★ The Tutwiler
- 4 Greensboro, N.C. ★ The O.Henry
- 5 New Orleans, La. ★ The St. Charles
- 6 Nashville, Tenn. ★ The Andrew Jackson
- 7 Montgomery, Ala. ★ The Jefferson Davis

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Write or wire Oliver L. Parks, President, for full information about Parks Air College and Parks products.

**PARKS AIR COLLEGE, INC.**  
East St. Louis, Illinois

### Airline Personal



Wright



Hood



Rood



Pate

### Executive

R. C. Wright, formerly auditor of disbursements for United Air Lines has been named assistant treasurer of UAL. S. V. Hall has been assigned to full-time management of United's military operations for the Air Transport Command across the Pacific and to Alaska.

Harold J. Roig has been reelected president and director of Pan American-Grace Airways. Howard B. Dean, who has been reelected as a director has also been made vice president of the airline. Henry Friendly has been chosen as a director in place of George L. Rahl, and Erwin Balluder has been elected as a director in place of Evan E. Young, the latter subject to CAB approval. Directors reelected besides Roig and Dean are W. F. Cogswell, A. Garni, H. Preston Morris, and R. H. Patchin.

Martin Lindsay, vice president of the Automatic Electric Co., Chicago, and James R. Stockton, president of the Tel-fair Stockton Co., Jacksonville, Fla., have been elected directors of Pennsylvania-Central Airlines. Hayes Dever, assistant to the president of PCA and assistant secretary of the airline for several years, has been elected secretary.

### Operations

John H. Evans, Herbert E. Persing, Warren E. Seeling, Amos Cann, and Carl M. Ustick are new co-pilots with Continental Air Lines. Margery Dickman, Elizabeth Malphurs, Jane Middlemist, and Joy Williams are new hostesses.

O. C. Richerson has been named regional manager of western operations for United Air Lines.

Capt. J. Lindsay Rood has been appointed chief pilot of Canadian Government Trans-Atlantic Air Services, operated by Trans-Canada Air Lines. Capt. Arthur Rankin has been named chief pilot of the airline's western division. His place in the Atlantic service is being taken by Capt. Jack Wright.

### Cargo

William B. Ingwersen, George W. Perry, and Lew Ziegelmeyer are new cargo

agents for Continental Air Lines at Denver.

### Traffic

Ralph Babbitt, Jr., and John Heke, Jr., are new traffic agents for Continental Air Lines at Denver. William Reed, Jr., is new traffic agent for CAL at Topeka, Kan.

Richard C. Walker, manager of Pan American Airways' traffic-advertising department since its formation, has been commissioned a lieutenant in the Navy. Kenneth C. Gunter will succeed Walker during the latter's leave of absence. Sylvester J. Roll, for the past four years general manager of Compania de Avacion Pan American Argentina in Buenos Aires, has been named assistant to the general traffic manager of PAA with headquarters in New York.

Russell G. Petite, DTM for Transcontinental and Western Air in St. Louis since 1938, has been named assistant to TWA's midwest traffic manager. John D. Thomas, reservations manager in New York, has been transferred to St. Louis to succeed Petite, and W. J. Mac Donald, Jr., chief reservations control representative in New York, goes to Thomas' former post. Carey E. Hood has been named chief traffic dispatcher for TWA at La Guardia Field, New York.

### Miscellaneous

Col. Joseph Benjamin Pate, recently retired from Army service, has been appointed special representative for TACA Airways System with headquarters in Washington, D. C.

American Airlines announces that Roger Williamson has been appointed assistant to O. M. Mosier, vice president, and is assigned to the Washington office. Also assigned to Washington is Morris Shipley, until recently supervisor of reservations and ticket offices for American in Philadelphia.

Charles F. Weaver, western superintendent of reservations and ticket offices for American, recently was guest of honor at a breakfast party in Los Angeles, on the occasion of his having completed 15 years with the airline.

## **Continental Serving Many Cities of Less Than 25,000 Population, Official Reveals**

Stating that in view of the number of applications before the Civil Aeronautics Board for feeder airline service, and the consequent delay in consideration of such cases, Continental Air Lines is not announcing definite future plans, applicable to the states it serves, Donald A. Duff, executive assistant, nevertheless recently outlined some of the service the line is now giving to cities of less than 25,000.

Duff pointed out that Continental is now certificated to serve three communities in Kansas of less than 25,000 population. In the states of Colorado and New Mexico, seven such cities are reached and in April when service is begun between El Paso and San Antonio, three more will be included.

Authorization for joining the two trans-Kansas routes at Hutchinson and Salina is anticipated, in which case Continental will then be serving seven leading Kansas communities, Duff said. Included will be the capital of the state which would have air transport service for the first time. "These seven communities will be connected not by a so-called feeder airline operation with single-engine equipment of small capacity, but they will be connected by daily service of trunk-line caliber, with twin-engine, high speed transportation of fourteen passenger capacity," he added.

**NOW! A New Daily  
Air Service between  
**SAN ANTONIO**  
and **EL PASO****

**via SAN ANGELO, BIG SPRING,  
MIDLAND-ODESSA, linking these  
cities with CONTINENTAL'S  
presently operating routes**

CONTINENTAL AIR LINES is honored to announce the inauguration of a new wartime air service connecting important cities in Texas. Not only will it mean faster improved transportation for MILITARY and CIVILIAN passengers, air mail and express for these cities, but it will likewise link many key industrial and war centers of south and west Texas with the Rocky

## **W. A. Patterson Gets 10-Year Plaque**



On completing 10 years as president of United Air Lines, W. A. Patterson received a silver plaque from employees of the airline. O. E. Kline, lead mechanic for UAL at Chicago, is shown making the presentation. Others in photo are, left to right: R. D. Edwards, Chicago station manager; N. B. Fry, acting general traffic manager; Alice Atkins, Patterson's secretary; Harold Knoop, superintendent of Eastern flight operations; Lester Davis, auditor of general accounts; and Betty McMahon, of the Chicago passenger service staff.

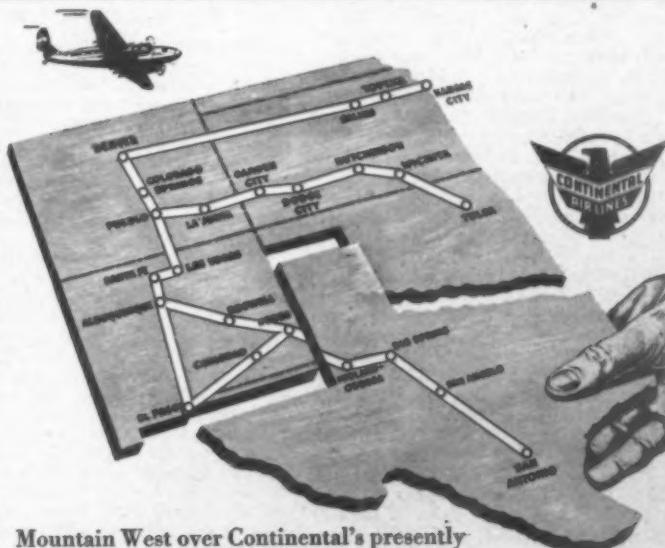
## UAL Officers Re-elected

All officers and directors of United Air Lines were reelected April 11 at the annual meeting of the company's stockholders and the subsequent meeting of the board of directors.

Officers are W. A. Patterson, president; J. A. Herlihy, vice president-operations; Harold Crary, vice president-traffic; C. C. Thompson, vice president-public relations; S. V. Hall and R. L. Dobie, regional vice

presidents-operations; N. B. Haley, treasurer; P. M. Willcox, vice president-administrative; John W. Newey, vice president-finance; S. P. Martin, secretary; Curtiss Barnes, comptroller; and C. H. Blanchard, auditor.

Directors reelected were W. A. Patterson, Martin C. Ansorge, Justin W. Dart, J. A. Herlihy, John J. Mitchell, Sumner Sewall, Paul G. Hoffman, Paul M. Godehn, and Gardner Cowles, Jr.



**Mountain West over Continental's presently operating routes.**

Continental Air Lines is proud of the privilege to further aid the war effort and to serve the people of these great regions.

**SERVING  
THE WEST**

**CONTINENTAL AIR LINES**

## Chicago & Southern's 1943 Profit Low

Chicago and Southern Air Lines, Inc., reports a net profit for 1943, after income taxes, of \$128,055 compared with \$277,719 in 1942.

In his message to stockholders, President Carleton Putnam noted:

"On Dec. 29, 1943, we were served with the final order of the Civil Aeronautics Board reducing our mail rate from an average of approximately 30 cents per airplane mile to .3 of a mill per pound mile. The new rate has proved equal to about 13 cents per airplane mile. The reduction was made effective retroactively to Feb. 1, 1943, and produced a decrease of \$304,180.95.

"It will be observed that, had our mail rate not been reduced by the Board, our net profit after federal income taxes for the year 1943, in spite of a rise of \$584,225.71 in operating expenses, would have been \$344,404.70, or an increase of \$66,685.35 over 1942. Passenger revenues increased from 63.7 cents per airplane mile to in mail revenues as compared with 1942. This decline, accompanied by a 35% increase in operating costs accounts for a decrease of \$149,664.00 in net profits for 1943.

"In November, 1943, your company sold to the public through its bankers 60,000 shares of common stock, thereby increasing its capitalization from 231,337 shares to 291,337 shares. The net proceeds of this sale, amounting to \$660,000, had been applied as follows as at Dec. 31, 1943:

To Tax Savings Notes .....	\$100,000.00
To U. S. Government Bonds ..	300,000.00
To Retirement of Notes Payable	150,000.00
To Expenses of Stock Issue ..	29,583.51
To Cash .....	80,416.49

Balance Sheet, Dec. 31, 1943, shows assets of \$2,966,119. Current assets were \$2,287,555, including cash \$623,014; special cash deposit restricted to use on government contracts \$165,000; U. S. Treasury obligations \$167,184; accounts receivable from U. S. Gov't departments \$905,287, from traffic balances \$188,787, from contract City of Memphis \$70,070, due from officers and employees \$7,868; inventory of parts and supplies \$158,580. Other assets \$242,061. Fixed assets: flight equipment less \$407,872 depreciation, net \$191,186; other property and equipment, less \$169,391 depreciation, net \$194,418; work in process \$8,740. Deferred charges \$42,154.

Current liabilities were \$1,102,073 including accounts payable \$186,755; traffic balances and deposits payable \$205,876; due U. S. Post Office \$200,777; advances on U. S. Gov't contract \$264,606; accrued liabilities \$238,693. Note payable to bank, due July 15, 1945, \$225,000; unearned revenue \$7,302. Deferred credits \$69,691; reserves \$10,816. Capital stock \$1,449,733; earned surplus \$101,502.

### Report on AA Accident

The Civil Aeronautics Board, following an investigation, has found that the American Airlines, Inc., accident near Trammel, Ky., the night of July 28, 1943 was due to severe turbulence and violent down-drafts which made it impossible to maintain altitude. The report said: "There was evidence that most of the occupants of the cabin were victims of suffocation or fire, or both, because of their inability to

### Plane Gets Service Stripe



All planes which may be returned to Pennsylvania-Central Airlines after performing war duty will wear a service stripe like the one shown above, which has been painted on a PCA Capital Liner returned from the Air Transport Command. Hostess Katherine Hartman salutes the 'veteran.'

### United Fruit Company Official Hits 'Chosen Instrument' Policy

The so-called "chosen instrument" policy, which would concentrate all American overseas air transportation in the hands of one huge monopoly, is "un-American and repressive of free enterprise," William K. Jackson, vice president of United Fruit Co. and a leading spokesman for the steamship industry, stated in an address before the New Orleans Foreign Policy Association during the fortnight.

"Overseas air transportation has been given a tremendous boost by war activities, and it is inconceivable that the American people would wish to place the growth and development of this new vehicle of transportation into the hands of one group," he said.

Jackson discredited statements as to the undesirability of having two U. S. companies competing against each other in overseas air service because they may bid against each other for favors or franchises from foreign governments. "Our air companies will have no favors to seek, for which they may bid against each other, if we have treaties with these governments, which we should and will have, that define the landing rights of our airplanes in their territory, and their rights on landing here."

effect an exit from the aircraft." Two passengers, one an experienced Douglas DC-3 pilot and at that time a pilot in the U. S. Army Air Forces, testified that the plane ran into a violent thunderstorm and estimated the sudden loss of altitude as approximately 500 feet.

## HELP WANTED

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### SERVICE ENGINEERS

In addition there are positions available to persons experienced in the following classifications:

### TOOL AND GAGE DESIGNERS MECHANICAL DRAFTSMEN METHODS ENGINEERS

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## HAMILTON STANDARD PROPELLERS

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All hiring shall be done in conformance with the War Manpower Stabilization Act.

## METROPOLITAN NEW YORK AIRPORT



For sale or attractive long term lease; suitable airline or air freight terminal or large commercial operations; ample size, excellent location and transportation facilities; buildings suitable for aircraft manufacture. Present income in excess of \$40,000 yearly. Detailed information available to responsible executives. Write owner Box 374, AMERICAN AVIATION, American Building, Washington 4, D. C.

*Check your answer. YES or NO...*



on the question of a  
**TRICYCLE LANDING GEAR**

**Y**OU'VE heard what the experts and prophets are saying about tomorrow's peacetime planes. And now it's *your* turn to speak up!

Right now, at the Bellanca plants, day and night, we're building the twin-engined AT-21-BL crew trainer, together with vital Army Air Forces warplanes armament and components. But we're thinking about *your* post-war plane, too — and it's none too early for *you* to do some planning.

To get the views of future aircraft owners, we're circulating an interesting and useful Aircraft

Quiz. The landing-gear question stated above is one of the many appearing on this Quiz. Other Quiz features ask the number of engines you prefer?—how many seats?—what speeds and range?—what size and type of engine?—how will your plane be operated?—whether you place Speed, Economy, Safety or some other outstanding characteristic *first*?—and many other questions bearing on the size and kind of aircraft you will want after our enemies are defeated...after you and yours have returned to the

American way of life and liberty.

Thousands are asking us for copies of this provocative post-war Aircraft Quiz. Shall we send it to you? It's arranged simply, so you can check off the answers in a few minutes. Then you can compare *your* answers with those of many other aviation enthusiasts who are now making their plans for peacetime flying. Just send your name and address to us—you'll receive the Aircraft Quiz by return mail....Bellanca Aircraft Corporation, Dept. S-5, New Castle, Delaware.

*Keep on Buying U. S. WAR BONDS*

**BELLANCA**

# Blame Production in Design-for-Use Debate

*Design Engineers Tell Foley They Do Their Part,  
That Production Men Put 'Bugs' in Planes*

By E. J. FOLEY

**'PRODUCTION'** is the newest whipping boy in the design-for-use debate that we have been sponsoring. Design engineers have come to the defense of their profession, declaring that they know the importance of clean design to maintenance and daily use, that their designs have been guided by use. But, the production department finds easier ways to make the parts, engineering loses and the product suffers from impractical "features" throughout.

Several design engineers have visited us since the appearance of our latest protest against the ignoring of maintenance and day-after-day operation by designers. We don't know whether they got together beforehand or not, but their stories were in agreement. Neither do we know whether their tale of woe is true but it is entirely possible. We're obliged and happy to give their story space in these columns.

However, let's get one thing straight at the start. We are not concerned with *who is to blame*; we are concerned with the repeated failures reflected in airplane designs. Whatever group it is that dictates such indiscretions needs education badly and soon.

Now, the aircraft manufacturing situation today is necessarily strained. The demands of the military are for quantities of aircraft and any impediment to volume production may be frowned on with reason. What we have said before in these columns, still goes—there is a difference between military and commercial aircraft. Military aircraft are expendable by nature. Their designs are predicated upon the necessity for ultimate destruction-ability for short periods. We guess that average use of military aircraft in front-line service is less than an hour a day. It can hardly be more than that.

## 'None of Our Business'

Whether or not the designs of present military craft are entirely satisfactory from a *use* standpoint is not for us to decide. It's strictly none of our business but we have heard some unhappy howls from the military men connected with aircraft service.

So far as we're concerned, volume production can be the determinant for the Services. The aircraft manufacturers must appreciate that it is not important to transport operations. Like they used to say about the auto—"It's not the initial cost, it's the upkeep." If it's true of the



Foley

auto it's a thousand times more true of airline aircraft.

If we assume that production has been a bottleneck in design for use and that our designers are correct in their blame, this is no time to criticize. The needed job is being well done in general. Instead we can take a look at this production miracle and learn a lesson from it.

When we have needed volume, we have been able to cut manufacturing corners and really turn out aircraft. The quantity manufactured isn't governed by an operating budget for long-term use. We build as many as we need to win and to hell with the expense. That's the right way to win a war. When you need more, go and get 'em.

Now, what's the corresponding position regarding airline operation? You don't buy an airplane for every hour or two of the day you expect to fly. You want eight or nine or ten hours per day per airplane and you must have years of service out of each. If you get your use on a 20-plane fleet up from 3 to 9 hours per day, you actually have gained two-and-a-half full airplanes on the basis of your eight-hour day. The operator didn't have to buy these literally but he is willing to pay for an airplane that gives this kind of improvement without extra operating or maintenance cost.

## Make 'Reproduction' Easy!

What the postwar transport plane needs is not speed and ease in production but speed and ease in "reproduction" or in other words, maintenance, overhaul, disassembly, assembly. The same ingenious minds that have cut manufacturing time and speeded the flow of planes to the front—these keen minds can surely be redirected to build an airplane which features accessibility, interchangeability and internal cleanliness. From this point on, our designers and production people should get together. Their common goal is unattainable if they insist on following conflicting courses.

The expected demands for aircraft in the postwar period are slim—most optimistic we've seen is 10-15% of present manufacturing program. The transport aircraft demands will only be a part of this. Recently experts have reported that only a few months' production at today's levels would satisfy the air transport industry for years. In quantity—yes! In quality we doubt it.

It hardly seems that an airline will give its business to the boys who can turn out the *most* on short notice. Of course if production permits the sale of the aircraft for a cent or two we'll see the paper cup technique of use it once and throw it away. Seriously though, the postwar market in transport aircraft will be a buyer's market. There will be shopping around far in excess of any such activity in the past.

If we were buying airline airplanes, the word "performance" would have to be qualified in several ways. Remember that the performance of today assumes that we're off the ground and there are too many hours of today when we'd be embarrassed by anyone asking us to demonstrate the airplane's performance. We would like to know how much "performance" daily is available in the design and coincidentally, how in the ground performance?

Doubtless plenty of you are mentally griping about our failure to admit the eleven and twelve hours a day use that the airlines are getting out of "obsolete" equipment. Well, there it is! If we take a good look at it, just what does it mean?

Does it mean that the aircraft manufacturers did a perfect job? Not necessarily. Since the introduction of these aircraft into use the airlines have made many changes in the interests of increased usefulness. So many in some cases that the component would not be recognizable from the original drawings. Manufacturer-operator collaboration has permitted the incorporation of these improvements in later aircraft. This has been most helpful.

Does this high utilization mean that maintenance costs are low or at a minimum? Again not necessarily. Wartime conditions have increased costs and introduced new variables to a point where today's work is a poor yardstick. Even in peacetime, were maintenance costs and loss of use incidental to maintenance loss? This is one question that can't be answered and maybe it's just as well for the aircraft manufacturers that it can't.

## Overhaul Takes Time

Lengthy layup for overhaul is still required. The increase in utilization is, we believe, more of a tribute to the airline operators than to the aircraft in service as originally designed. Costs have been coming down but we are sure that compared to other transport vehicle costs, the aircraft has been away high. By its natural complexity and difference in medium of operation, the aircraft can be expected to be higher than the others even if doing its best. But we just can't believe that the airplane is anywhere near the workhorse level, yet.

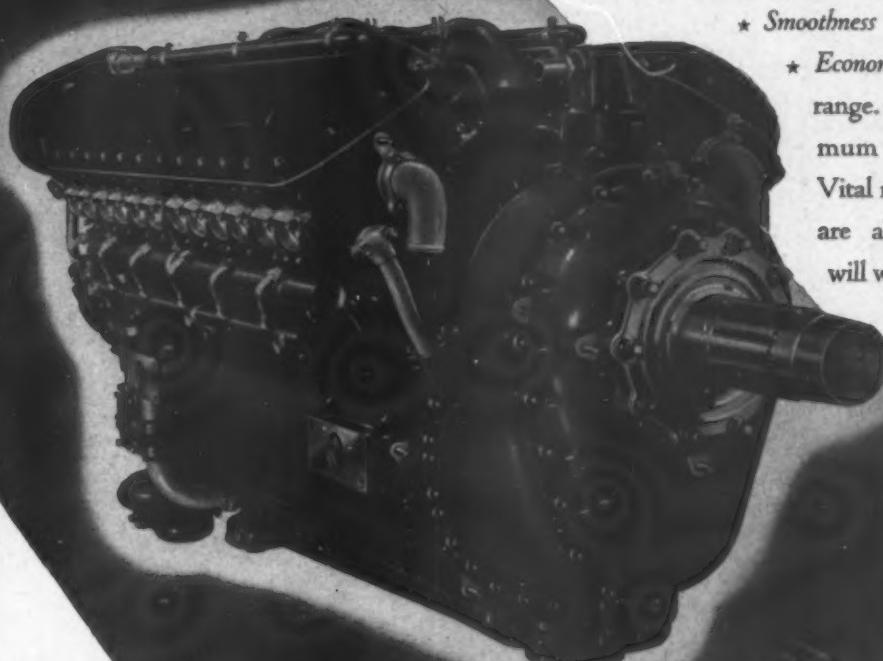
In the future more utility must be incorporated in the design stage; less must be left for development in use. It should not take five years operation of a plane to get it to an acceptable, if still expensive, service level. Designs have been forced to permit ease and speed of building. Designs must be forced to permit ease and speed of servicing, overhaul, ground handling, etc. To paraphrase a wartime slogan—"The airlines won't buy 'wo if one will do!' The manufacturer who builds that 'one' gets the business.

## TODAY AND TOMORROW

Today, tomorrow and until the war is won every Allison engine is built to a standard that embraces five "must" qualities: ★ *Performance* that helps our fighters win battles. ★ *Reliability* on which our pilots can depend.

★ *Smoothness* to lessen pilot fatigue.

★ *Economy* for greatest fighting range. ★ *Durability* for maximum fighting readiness. ★ Vital now for our flyers, these are also characteristics you will want in engines that will power postwar planes.



### POWERED BY ALLISON

The more-than-50,000 Allison engines built for the U. S. Army Air Forces power the following planes:  
P-38—*Lightning* • P-39—*Airacobra*  
P-40—*Warhawk* • A-36 and P-51—*Mustang*

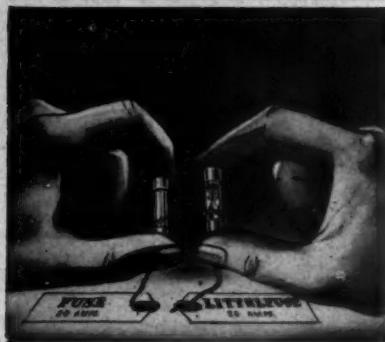
### LIQUID-COOLED AIRCRAFT ENGINES

**Allison**  
DIVISION OF  
Indianapolis, Indiana

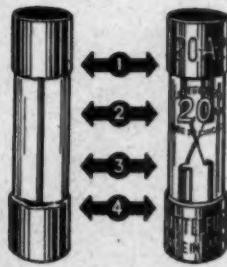


KEEP AMERICA STRONG  
BUY MORE WAR BONDS

*Compare*  
**LITTELFUSE**  
with an  
**ORDINARY FUSE**



ORDINARY FUSE      LITTELFUSE



1 Cap cemented on. Easily loosened.

1 LOCKED CAP ASSEMBLY (Pat.). No cement.

2 No reinforcement of fuse element.

2 Elements twisted at 90° against severe vibration.

3 Mechanically polarized. Responds to vibration.

3 Mechanically depolarized against vibration.

4 Unprotected against contraction and expansion.

4 "Gooseneck" takes up contraction and expansion.

**ENGINEERED FOR TODAY'S  
NEW CIRCUIT PROTECTION!**

"Quicker than a short circuit."

Extraordinary circuit protection is now imperative in ever-widening fields of electrical products. Littelfuse engineering meets and anticipates these demands.

Every Littelfuse is thoroughly pre-tested before delivery.

If your problem is circuit protection Littelfuse can help you.

**LITTELFUSE Inc.**

263 Ong St., El Monte, California  
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## Equipment News

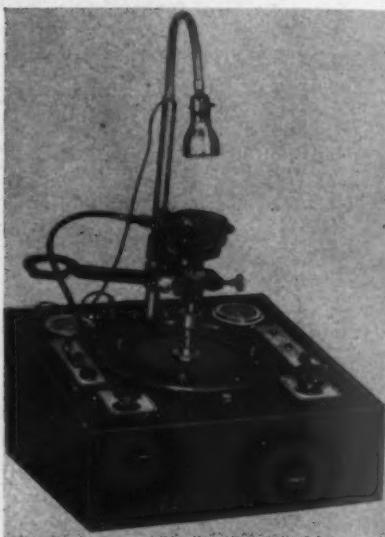
### Weathercaster

The Weathercaster, a new development of Kenyon Instrument Company, is said to enable the average layman to coordinate all necessary factors for a dependable weather prediction for a period of from 12 to 24 hours in advance. The Weathercaster shows 5,000 different weather combinations, and is founded on sound basic meteorological principles, according to its manufacturer. Its functions include:

1. Forecasts wind direction, with an average accuracy of about 80% for a period of 18 hours in advance;
2. Predicts wind velocity, with an average accuracy of about 76% for 18 hours;
3. Predicts weather, with an average accuracy of about 82% accuracy for 18 hours, approximately 90% for 12 hours; and
4. Temperature forecasts average about 75% for 18 hours.

### Distributor Tester

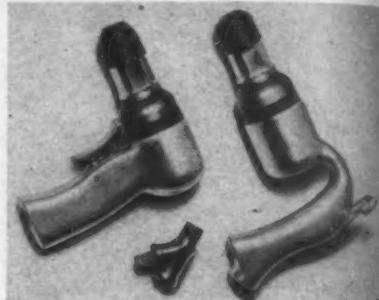
This new Lanagan Distributor Tester quickly locates the cause of irregularities in performance, whether due to improper



point action, wrong adjustment, wear, etc. Mounted in the center of the panel is a motor-driven rotating disc containing two special electronic tubes, one red and one blue. Since the distributor is connected to the central shaft, the tubes rotate in unison and light brightly each time the contacts close. A worn cam, shaft or bushing will illuminate the blue light out of phase with the red, and both red and blue bars will be visible. The number of degrees between the two indicates the discrepancy. Each firing impulse of the distributor is shown by the light bars at all times, thereby giving a true indication of each lobe of the cam. The built-in vacuum pump and gauge make it possible to operate the vacuum advance mechanism of the distributor and ascertain whether or not it is advancing the spark in accordance with the manufacturer's specifications.

### Riveting Hammers

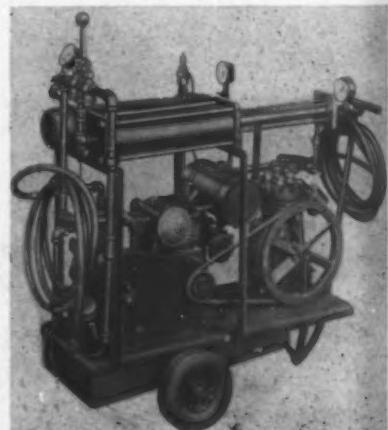
The Forss Pneumatic Tool Company, 1827 Broadway, Rockford, Ill., is introducing a completely new line of Slow Hitting Aircraft Riveting Hammers, as illustrated here. These new hammers are



said to be notable for their power, perfect control, smooth operation and ease of handling, and have a number of exclusive features such as a two-finger trigger, a metered air throttle valve, an improved offset handle, good balance, and compact design. The arrangement of the valve mechanism and porting drive the piston with a high degree of efficiency, it is claimed, reducing jarring and vibration to a minimum, and providing power substantially in excess of ratings.

### Combination Pump Unit

This is the new Harman combination pump unit announced by Pacific Airmotive, Division of Airplane Manufacturing & Supply Corp., 409 N. Brand Blvd., Glendale 3, Calif. By adding a hydraulic air booster to its combination fluid and air pumping unit, it is able to deliver air up to 1500 lbs. pressure, especially designed to recharge aircraft struts. Pressure may be controlled by the operator at any point up to maximum delivery. The booster is so engineered that it will reach top pressure very quickly. The booster equipment is an added accessory to the regular combination pumping unit, which cannot be purchased separately, although the basic combination unit is distinct and may be had separately for use in a wide variety of aircraft servicing procedures.





## Saving Lives

### AFTER VICTORY

*...we hope to apply  
our skills and adapt our  
machines to producing  
peacetime goods for  
your better living. To  
speed that day*

**BUY MORE WAR BONDS**

... is our business! In the midst of world-wide destruction it is inspiring to be in the business of life saving. Deeply grateful to be in that position, we of Standard Parachute Corp. fully appreciate the responsibility the job imposes. As man's last chance, Standard chutes must be no less than perfection in every stitch and seam. No other needlecraft assignment in all the world calls for such fine character of workmanship and precision of machines.

# Stamper

STANDARD PARACHUTE CORPORATION

SAN DIEGO, CALIFORNIA, U.S.A.

**PRE-DETERMINED**

*Stopping*  
**POWER**



**BENDIX\*** Aircraft Brakes have to withstand the most terrific factory test for stopping power that science has devised!

A massive 30-ton dynamometer in the Bendix laboratory simulates the ground resistance and skidding action that would be encountered in landing a plane on a runway. The 37,500-pound flywheel of this dynamometer, revolving at rim speeds as high as 120 miles an hour, accurately

represents the energy which must be dissipated when a given plane is landed. Specially designed, sensitive instruments automatically record the performance of each brake tested.

This scientific method of testing Bendix Brakes is typical of the extreme care with which the performance of all Bendix equipment is pre-determined. Thus, Bendix precision manufacture protects personnel and planes in those critical moments of take-off and landing.



**Bendix\*** Landing Gear—**Bendix Pneudraulic\*** Shock Struts, Bendix Airplane Wheels, Airplane Brakes, Hydraulic Master Cylinders, and Power Brake Valves are important members of "The Invisible Crew" of precision equipment which more than 30 Bendix plants are speeding to world battle fronts.

\*Trademarks of Bendix Aviation Corporation

**BENDIX PRODUCTS DIVISION OF BENDIX AVIATION CORPORATION • SOUTH BEND, INDIANA**

# NAWPC Lists 54 Activities During Its Formative Year

THE NATIONAL AIRCRAFT WAR PRODUCTION COUNCIL, reaching its first anniversary on April 15, compiled a list of 54 activities and accomplishments reaching into practically every phase of aircraft manufacture during its year of existence.

Recognized as the most effective machinery ever devised for welding the industry together in the difficult tasks of war production, the Council listed the following major points in its program:

1. Attendance Aircraft Production Board meetings by General Manager.
2. Conferences with ASU, WPB officials and Will F. Clayton, Director Federal Surplus War Property Administrator, concerning disposal of surplus materials.
3. Conferences with Baruch and Byrnes and Army, Navy and Maritime Commission on form, establishment and operation of West Coast manpower program.
4. Assistance to WMC in preparation of critical occupations list for aircraft.
5. Participation in successful effort to persuade C. E. Wilson to remain in Washington.
6. Followed changes in CMP and other materials controls for Councils.
7. Assisted in the development of warehousing plan for surplus materials.
8. Work with OPA on gas ration and tire distribution matters.
9. Discussions with APB and WPB on incentive pay plans and ten-hour shift operation.
10. Planning and assistance in connection

with aviation research by the Harvard Business School.

11. Discussions with General Knudsen and others resulting in Government action to curb engineering service "rackets."
12. Selection of panel members and establishment of Airframe Panel unit.
13. Conferences with President's Committee for congested production areas.
14. Followed availability of critical materials with ASU and WPB.
15. Assistance to the Bureau of the Budget in organizing and operating the Aircraft Advisory Committee on government questionnaires.
16. Conferences WMC on manpower and turnover problems.
17. Presentation to NHA and WPB of necessity for additional war housing.
18. Coordinated materials and government reports with the Central Aircraft Council and with the Automotive Council for War Production.
19. Conferences Selective Service officials covering West Coast draft moratorium, Manning Tables, Replacement Schedules and occupational deferments.
20. Discussions looking to part-time employment for service men on furlough.
21. Elected changes in inventory regulations.
22. Discussions with Agriculture Department and WPB re WFA industrial feeding program.
23. Clearance of production information with Director of Canadian Aircraft production.
24. Conducted survey for Al-Mag Division of WPB on aluminum extrusion inventories and requirements.
25. Conferences Navy BuAer on worker incentives programs, plans and publications.
26. Elected revocation of limitation order controlling manufacture of welding electrodes.
27. Conferred with WPB re scrap aluminum.
28. Secured information and coordinated East and West Coast opinions on AN-1-21 specification for Joint Aircraft Committee.
29. Conferred with Smaller War Plants Corporation regarding survey of California plants.
30. Assistance to Department of Labor in preparation of statistics on airframe production.

31. Liaison with British Information Service and AAF Special Services re use of incentive and informational war films.
32. Established contact with Foreign Economic Administration as possible outlet for surplus materials.
33. Conference on use of U. S. Office of Educational Vocational Training equipment.
34. Conferences looking to development of reemployment policy and program for World War II veterans.
35. Clearance of publications for member Councils.
36. Secured changes in CMP Bills of Materials procedure through cooperation with ASU.
37. Conferred with WPB and ASU regarding component scheduling orders.
38. Conducted survey for ASU on medium pressure hose inventories and requirements.
39. Assistance in establishing deferment plan in B-29 and B-32 plants.
40. Channelling inquiries from British airframe manufacturers on American production methods.
41. Assisted in an ARCO survey of non-controlled materials.
42. Conferred with WPB regarding anti-friction bearings control.
43. Talks with government officials re establishment plant service bureaus.
44. Securing release of Naval personnel for employment in aircraft plants.
45. Expediting WPB priorities on equipment for Child Care Centers.
46. Discussions with WMC, Army Service Forces, Selective Service and Veterans Bureau re job placement program for veterans.
47. Conferences Army Auditors, General Accounting Office on subject disallowance advertising costs in trade magazines.
48. Assistance to AAF, WMC and Selective Service in preparation of current occupational deferment program.
49. Arrangement to reproduce Selective Service forms in emergencies.
50. Conference with SEC resulting in corrective news release of airframe profits, during 1943.
51. Contact with Washington newspaper correspondents, editorial writers and aviation magazine editors on aircraft production information.
52. Furnished East and West Coast Council managers confidential memoranda on Washington developments and trends.
53. Coordination with Truman Committee in presentation of facts for production reports.
54. In response to requests, presentation of production information to various House and Senate Committees.

## Plan for New Martin Seaplane Base



Artist's conception of the new Strawberry Point seaplane base at the Glenn L. Martin Company's Baltimore plant, showing hangar, seaplane ramp, and compass compensating circle as they will look when completed.

## MANUFACTURING

### New York Trust Company's 'Index' Sees Industry Facing 'Expansive Outlook'

A twenty billion dollar industry in 1943, with a 50% greater production expected this year, aviation faces a future in which millions of individuals in this country and abroad will have personal knowledge of what airplanes can do as a transport agency; a vast number will know how to fly and repair them; and the general public is convinced that new improvements will soon provide safer, cheaper, more comfortable and more dependable transportation for a peacetime world.

Few industries face such an expansive outlook with such a legacy and such an obligation, *The Index*, published by the New York Trust Company, declares.

War has made aviation the nation's leading industry and will inevitably bequeath its advantages, responsibilities and problems which will be unique in the nation's economic history, the statement adds. A generation of experience has been telescoped into less than five years.

Back of this bright perspective lies a relatively short period of rapid developments. In aircraft manufacturing, production of commercial planes which had risen in 1926 to 604 as compared with 268 in 1925, soared to 1,565 in 1927, doubled in 1928 and reached 5,357 in 1929. The output of military aircraft, backlog of the industry then, as now, showed no great variation with the exception of a jump to 1,219 planes in 1928 compared with 621 in 1927 and 677 in 1929.

Such production seems insignificant when compared with the output of 150,000 combat planes during the past three years. Currently, the country is turning out aircraft at the rate of 120,000 annually. The roots of an industry, largely planted a mere 15 or 20 years ago, have grown to be deep and permanent.

The first consolidation movement of the air transport companies evolved when the country was passing into a depression period. The Federal Government supported the idea in the early Thirties of

promoting passenger traffic and reducing compensation for the maintenance of air mail service.

In 1934, passenger transportation for the first time represented the source of more than half the total revenue of the airlines—55.2%, compared with 42% for mail, and 2.8% for express.

These figures reveal a story of unusual progress. Only three years before, in 1931, passenger traffic provided only 17% of total air transport revenues, mail 82.5%, and express the small remaining amount. Ten years later, the breakdown showed passenger revenues contributing 76%, mail about 21%, and express approximately 3%.

War changed sharply the character and volume of traffic, the figures become meaningless unless this is kept in mind. In 1943, total revenues soared to an all time high estimated at \$125,000,000, made up approximately as follows: passenger 72%; mail 21%, and express 7%.

### Luscombe's Net \$159,153

Luscombe Airplane Corp. reports that net profit for the year ended Dec. 31, 1943, after taxes but before renegotiation, was \$159,153.94, or equivalent to \$.46 per share of stock outstanding.

Balance sheet at Dec. 31, 1943, shows total assets of \$1,448,203, with current assets reported at \$1,205,672, including cash of \$174,237, trade accounts receivable \$649,598, and inventories \$381,837. Current liabilities amounted to \$789,712, with notes payable to bank \$200,000, trade accounts payable \$120,367, provision for State and Federal income and excess profits taxes \$337,798, reserves \$95,000 and miscellaneous accruals \$36,547.

### Martin Officers Re-elected

All officers of the Glenn L. Martin Co. were reelected at the annual meeting of the company's stockholders April 11 as follows: Glenn L. Martin, president; Joseph T. Hartson, Harry F. Vollmer, William K. Ebel, and Harry T. Rowland, vice presidents; Myron G. Shock, treasurer and assistant secretary; Morgan R. Schermerhorn, Jr., controller; and Thomas H. Jones, secretary.

### General Motors Report

#### Lists Aviation Products

Airplanes and aircraft engines, sub-assemblies and parts account for more than 40% of the total dollar volume of war material deliveries, General Motors Corp., states in its annual report to stockholders. In a list of aircraft products produced by the corporation, the report features:

Two combat planes designed by the Grumman Aircraft Engineering Corp., the Wildcat fighter and the Avenger torpedo bomber, are being produced for the Navy's carrier forces. In addition to production of combat planes and of Allison and Pratt & Whitney aviation engines, GMC makes airframes, wing sections and other subassemblies for the B-25, North American Mitchell bomber, as well as landing gears, propellers and other components for other types of airplanes.

"In the aircraft instruments field, GMC is a volume producer of bombsights, automatic pilots, horizon indicators, autosyn motors and other equipment . . . Batteries and wiring, spark plugs, radio receivers and transmitters and other electrical apparatus, along with such items as hydraulic controls, oxygen flow indicators and fuel pumps, have been produced in quantity. For airplane fire-power, corporation is producing machine guns and 20 and 37 mm. cannon. Another product is the aerial torpedo."

### On Citizens' Forum Broadcast



This group recently discussed the future of Aviation over Station KNX in Los Angeles. Left to right—G. H. Macomber, district traffic manager of United Air Lines; Dr. Frederick P. Woellner, University of California professor, who acted as moderator; Arthur Ayres, airport and airways consulting engineer, Pan American Airways; LaMotte Cohu, chairman of board and general manager, Northrop Aircraft; and Robert L. Smith, president of Los Angeles Municipal Airport Commission.

### Merchandising Committee Formed by Distributors, Manufacturers Association

The Aviation Distributors and Manufacturers Association has set up a merchandising committee headed by T. G. Tyman of the Electric Storage Battery Co., Philadelphia. The new group will study "all phases of the merchandising of aviation parts, supplies, and equipment with the particular thought in mind that the groundwork should be laid now for an educational campaign so that retailers, in their contact with ultimate users, may use up-to-date, aggressive, progressive methods," says an association announcement.

Other members of the committee are Thomas O. Duggan, Thompson Products, Inc., Cleveland; W. F. Scott, Jr., Supply Division, Inc., Robertson, Mo.; R. B. Kenty, Air Associates, Inc., Dallas; C. A. Luma, General Aircraft Supply Corp., Detroit; and Dwight P. Joyce, The Glidden Co., Cleveland.



— and  
the menace  
of SAND  
In our African Cam-  
paign the R.A.F and  
mechanised units of  
the Army have had  
this extra enemy to  
fight and conquer  
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**VOKES  
FILTERS**

we are proud to say,  
have helped to beat  
the enemy SAND.  
Special types of Vokes  
Air, Oil and Fuel  
Oil Filters were  
demanded, pro-  
duced and did  
their job. In  
countries where  
sand is a menace  
to all machinery  
Vokes Filters  
prove invaluable  
in all industries.

# Our desert troops know what a frost is

**By  
ARCHER  
BROOKS**

**Appalling Conditions!**  
VOKES tackled this problem . . .

On the right is shown the actual filter element of a Vokes Air Filter for Aircraft. It traps dust particles down to 0.00004 in. dia., upholding the Vokes standard for their filters, 99.9% filtration efficiency.

# VOKES

VOKES LIMITED • FEDERATION EXPERTS

THE ARTHUR S. LEITCH CO., LTD.  
1123 BAY STREET, TORONTO, CANADA  
E. CANTIN, 101 PARK AVE., NEW YORK

## MANUFACTURING

### Aircraft Electrical Council Formed

The National Electrical Manufacturers Association has formed a subdivision to be known as the Aircraft Electrical Council "to provide a more effective contact between the aircraft and the electrical manufacturing industries."

The Council, which already has a membership of approximately 50 NEMA member companies producing electrical equipment for use in aircraft, will make available the experience and facilities of electrical manufacturers to producers of aircraft and to those representatives of the Armed Services interested in aviation problems. At the same time, the Council will provide member companies with information about performance and production requirements of electrical equipment for aircraft applications, and will contribute to the development of pertinent purchase specifications, says a NEMA announcement.

The entire aircraft industry and its affiliated professional and technical organizations have been invited to consult with the Council on any and all problems pertaining to the development and procurement of electrical products for the manu-

facture, maintenance, and operation of aircraft.

"The National Electrical Manufacturers Association, in forming the Aircraft Electrical Council, is recognizing the special factors of design and application which characterize aircraft uses of electrical equipment," says the announcement. "Accordingly, the working plan of the Council will be flexible and efficient, providing a tempo and an intensity of action dictated by the specific requirements of individual projects. This approach to the solution of mutual problems will be of distinct advantage both to the electrical and to the aircraft manufacturing industries."

"Of special benefit to the aircraft manufacturing industry is the opportunity provided by the Council for direct discussion with manufacturers of electrical equipment. The process of obtaining electrical components which match in performance and in physical characteristics the requirements of aircraft use is a complicated one. The Council proposes to contribute to this phase of application engineering by providing channels for efficient flow of pertinent information."

### Lockheed's '43 Net Totals \$7,988,420

Lockheed Aircraft Corp. and its wholly-owned subsidiaries, report net income for 1943, after all reserves, including the amount anticipated to cover possible renegotiation, totals \$7,988,420. This is equivalent to \$7.44 per share of stock outstanding and compares with net of \$8,163,721, or \$7.59 a share, after reserves and adjustments for the year 1942. Indicated net income after reserves was 1.15% on sales for 1943, as against 1.66% on sales for 1942.

Production and services for the year ended Dec. 31, 1943, amounted to \$697,408,167 which was 40% greater than for 1942, and over four times that of 1941.

Highlights of the annual report to stockholders included announcement of continuing shift of the company's business to the cost-plus-a-fixed-fee type of contracts, on-schedule delivery of warplanes; increased production with less personnel, and a warning by Robert E. Gross, president, that the financial problems to be faced when Government contracts are terminated can be serious for the nation as well as the corporation.

Reserves set up during 1943 included a \$9,000,000 provision for contingencies and postwar adjustment. In addition, provision was made for reduction of sales through renegotiation by \$15,000,000 and sales were also reduced by \$14,727,527 as a provision for possible inability to obtain payment on all items charged to cost-plus-fixed-fee contracts. Working capital, as of Dec. 31, 1943, amounted to \$19,100,000.

Balance Sheet, Dec. 31, 1943, showed assets of \$265,460,468. Current assets were \$233,159,259 including cash \$27,413,124; U. S. Treasury certificates \$40,000,000; accounts receivable \$106,208,314; accrued price adjustments on contracts \$6,254,066; inventories \$50,620,818; advance payments

on inventory purchase commitments \$2,662,937. Investments \$3,877,230. Postwar refund of Excess Profit taxes \$5,142,235. Fixed Assets \$19,841,022. Deferred charges \$3,440,721.

Current liabilities were \$124,098,081 including accounts payable \$40,834,367; salaries and wages \$3,010,654; Federal taxes \$53,451,519; other taxes \$5,936,624; advances and deposits on fixed-price contracts \$1,911,179; provision for renegotiation, \$15,000,000.

#### Can 'Take' 70-Ton Jolt



The Martin Marauder's main landing gear, looking aft. It can withstand an impact of more than 70 tons when the plane lands.

### Jacobs Earns \$3.05 Per Share in 1943

Net earnings of the Jacobs Aircraft Engine Company for the year ended Dec. 31, 1943, after all taxes and after Federal Excess Profits Postwar Credit, but before renegotiation, amounted to \$1,890,568, equal to \$3.05 a share on the 618,546 capital shares outstanding. This compares with an adjusted earnings figure of \$1,708,478, or \$2.76 a share in 1942, after giving effect to a tentative renegotiation.

Net income before Federal Excess Profits Postwar Credit for 1943 amounted to \$1,230,594, equal to \$2.08 a share, compared with \$1,148,291, or \$1.85 a share in 1942.

The Jacobs company produced a record output of engines and parts during 1943 at the comparatively low margin of profit of 2.9 per cent on the net sales, after taxes, but before renegotiation, the company said.

Sales for the company for the year ended Dec. 31, 1943, amounted to \$63,915,822, after reduction by a voluntary refund of \$5,000,000 made to the U. S. Army Air Forces during the year, compared with \$34,437,464 for the same period in 1942, after giving effect to a tentative renegotiation settlement of \$4,500,000 reached with the Regional Price Adjustment Board, but not approved by Washington, which has indicated a claim for an additional \$500,000.

In December, 1943, a notice of termination was received from the government, cancelling deliveries of Jacobs engines scheduled beyond March, 1944, in connection with current cut-back of training plane procurements. (Company also manufactures Pratt & Whitney engines) Present spare parts contracts are sufficient to keep Plant No. 1 operating on a two-shift work basis beyond the end of 1944, however, and Plant No. 2 has not been affected by cancellations to date.

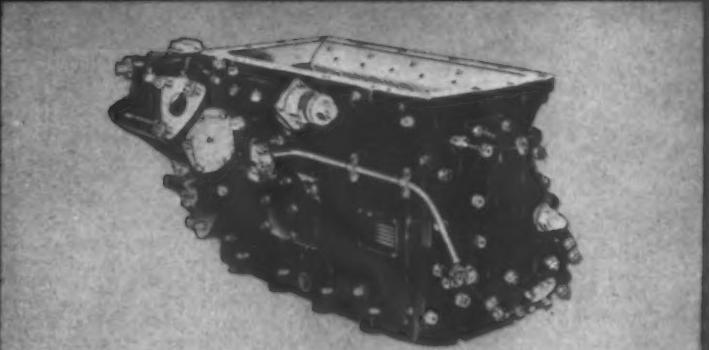
Balance Sheet, Dec. 31, 1943 shows assets of \$18,664,681. Current assets were \$15,594,658 including cash \$5,235,731; accounts receivable from U. S. \$2,480,778; other accounts receivable \$652,970; inventories \$7,225,177. Property, plant and equipment \$98,493; emergency facilities \$1,477,721. Federal postwar tax credit \$1,160,160; deferrals \$333,646. Assets identified with cost-plus-fixed-fee contract \$5,895,493.

Current liabilities were \$13,182,566 including Reg. V. Loan payable \$6,000,000; accts. payable \$1,513,144; accrued taxes \$5,614,374; other accruals \$49,522. Reserve \$500,000. Capital stock \$618,546; paid-in surplus \$50,832; earned surplus \$3,412,736.

#### GAT Reports Profit

General American Transportation Corp., Chicago, Ill., and subsidiaries, report a gross income for 1943 of \$83,958,514. Profit before Federal taxes was \$12,969,480, or \$3,314,112 over 1942. Net profit was \$4,003,380 or \$598,012 higher than in previous year.

Company's manufacturing facilities, expanded and modernized, increased its output of airplane fuselages, airplane landing mats, and airplane sub-assemblies among other war products.



**CECO CARBURETORS**  
Uniform distribution. Minimum "scoop effect."



**CECO FUEL PUMPS**  
Dependability — tested from  $-90^{\circ}$  to  $+150^{\circ}$  F.



**PROTEK-PLUGS**  
The modern moisture removal method.



**CECO products and their performance are the result of highly specialized design, engineering and production for the aircraft engine industry — a service that will continue to anticipate future requirements.**

CHANDLER-EVANS CORPORATION — SOUTH MERIDEN, CONNECTICUT, U. S. A.

## MANUFACTURING

### 'Stock Market Fails to Reflect Certainty of Aviation's Growth'

Had it not been for the war, aircraft manufacturing most probably would have developed as a typical growth industry, and the aircraft companies would by 1945 presumably reach a business volume around \$1,000,000,000, compared with \$235,650,000 in 1939, Hares, Ltd., Jersey City investment house, states in an analysis of investment opportunities in the industry.

No far-sighted investor seriously questions that aviation is a growth industry, the summary brings out. "He believes that in the postwar years a tremendous demand for safe and practicable family and personal aircraft will develop; that the transportation of passengers, mail and cargo by airlines will expand enormously; that transoceanic air-travel will assume widespread proportions; that government, business, agriculture, etc., will use a variety of airplanes and other flying craft for multitudinous purposes; that there is likely to be a wide foreign market for American aircraft and that our National Defense program will necessitate a steady and continually improving supply of military aircraft for an indefinite period.

"Yet to judge by the market action of leading aircraft stocks, the investor has forgotten this. Instead, he has permitted his perspective to become warped from viewing the industry's swollen "war production" and from visualizing a fancied aftermath of collapse. This investment attitude is unrealistic since it ignores the fundamental fact of growth, consequently it underestimates the favorable factors in the situation which should prevail in the years following the war."

### Financial

DOAK AIRCRAFT CO., Inc., Torrence, Cal., balance sheet, Feb. 29, 1944, showed assets of \$1,320,763. Current assets were \$862,841; fixed assets \$405,970; current liabilities \$636,266; reserve for contingencies \$384,943. Capital stock \$200,000; earned surplus and current earnings \$99,573.

LIBERTY AIRCRAFT PRODUCTS CORP., Farmingdale, L. I., N. Y., balance sheet, Nov. 30, 1943, showed assets of \$9,327,429; current assets \$6,322,067; investments \$1,803,813; fixed assets \$411,859. Current liabilities were \$5,449,046; reserves \$1,325,000; capital stock \$200,000; capital surplus \$493,919; earned surplus \$1,859,463.

NORTHWEST AIRLINES, Inc., balance sheet report, Dec. 31, 1943, shows assets of \$6,986,934. Current assets were \$5,432,016 including cash \$2,558,951; U. S. Treas. bonds \$175,000; accounts receivable \$920,578; unreimbursed costs \$1,360,077; inventories \$417,409. Planes, property, etc., less \$1,851,261 for depreciation and amortization, \$1,164,941. Land \$10,494; mail contract \$48,737; deferred charges \$153,013. Current liabilities were \$4,067,535 including accounts payable \$2,939,459; accruals \$199,016; income taxes \$364,060; contr. costs res. \$535,000. Reserve for postwar adjustment \$50,000; deferred income \$44,904; inventory res. \$25,000. Common stock \$1,359,200; paid-in surplus \$41,799; earned surplus \$1,368,496.

### How to Prepare for 'Termination'

Thornton Lewis, chief of the public service branch, readjustment division, of the Army Service Forces Headquarters in Chicago, has issued the following directions for industry on how to prepare for termination of war contracts, to insure prompt settlement:

(1) Select an executive and give him necessary authority to handle termination procedure. (2) Make a list of all personnel within the organization and subcontractors and suppliers outside who must be notified to stop work when notice of termination is received. (3) Study all controls and purchase orders; make sure that each can be identified with the prime contract to which it applies.

(4) Establish a policy and method for the transfer or layoff of employees no longer required. (5) Be prepared to recommend to the contracting officer those items which should be further processed in order to obtain, when sold, a better net realization for the Government. (6) Maintain records for each contract to show costs of all jigs, moulds, fixtures, gauges, dies, patterns, etc., for which reimbursement is expected. Determine which will have only scrap value. Determine the value of the others, if it is desired to retain them.

(7) See to it that there is an ample supply of cards, inventory tickets,

vouchers and any other forms needed to record inventory, to compile costs, etc. (8) Be prepared to segregate and protect all Government property. Be sure it can be identified. Keep stock control records accurate and up-to-date. (9) Determine what surplus material you want to retain and its value to you.

(10) Train personnel to take periodic inventories and study space requirements for the Government as well as your own inventories for which you will make claims. (11) Set up separate accounts to record all expenses of termination as they occur. (12) Suggest similar procedures for your subcontractors.

### Helldiver Output to Be Doubled

Rep. Melvin J. Maas (R., Minn.), ranking member of the House Naval Affairs Committee, disclosed during a recent surprise visit to Curtiss-Wright Corporation's Helldiver plant at Columbus, O., that production of the dive bombers will be doubled within the next few months. The Congressman discounted rumors of cutbacks in naval aircraft production, adding that recent American successes in the Pacific "are just according to schedule and have not shortened the war any."

### "Schedule with Safety"



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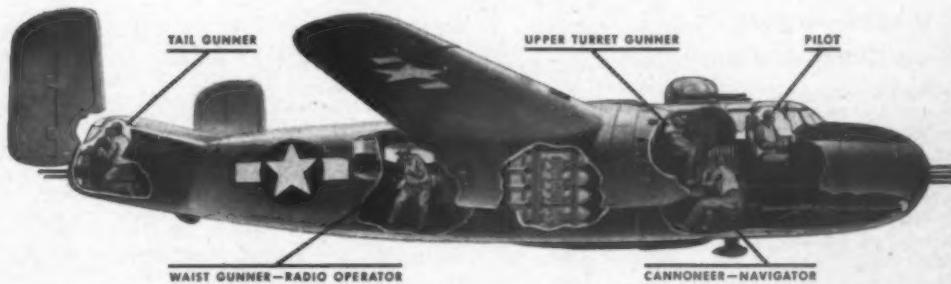


## 15-gun salute from American flyers

There's "no future" for Japs and Nazis who tangle with the crushing firepower of the 15 guns packed by the new B-25 Mitchell bomber. Today's Mitchell -6000 design improvements more deadly than the model in which General Doolittle bombed Tokyo—bristles with heavy armament. From the 75-mm. cannon in its nose to the "stingers" in

its tail, the Mitchell's guns blast the enemy on land and sea, protect its five men crew against air attack. As they shoot to win on eleven fronts of this global war, the victorious B-25s are helping mightily to soften up the enemy, to make the job of American fighting men all over the world easier, safer.

North American B-25 Mitchell



**FIREPOWER PLUS MANPOWER!** The B-25 Mitchell and its 5-man crew fight together as the world's hardest-hitting medium bomber team!

## North American Aviation Sets the Pace

**WE MAKE PLANES THAT MAKE HEADLINES...**the B-25 Mitchell bomber, AT-6 Texan combat trainer, P-51 Mustang fighter (A-36 fighter-bomber), and the B-24 Liberator bomber. North American Aviation, Inc. Member Aircraft War Production Council, Inc.

## MANUFACTURING

### Pratt & Whitney's Noorduyn Earnings Decline in 1943 K. C. Plant Geared For High Production

Pratt and Whitney's new Kansas City plant, manufacturing the new higher-powered Wasp 2800-C engine, aims to reach capacity production of 3,000,000 horsepower output per month "within a year," Rear Admiral D. C. Ramsey, chief of the Navy's Bureau of Aeronautics, reported to forty newsmen touring the plant last month.

Covering 3,000,000 square feet of floor space, this Government-financed plant will be operated by Pratt and Whitney for the Navy Department, without profit—not even a management fee.

The single engine horsepower of the 2800-C is 2,100. A plane powered with four 2800-C's, operating with open throttle, would consume 1,000 gallons of gasoline an hour.

Numerical engine output of the plant is confidential. A portion of the 3,000,000 horsepower per month goal of the Missouri plant will be accounted for by parts for Pratt and Whitney's Hartford, Conn., plant.

The greatest threat to the attainment of capacity production by next year is manpower. Fifteen thousand additional employees are needed, and to meet production schedules, must be hired at a rate of 200 per day. The plant's schedules, H. Mansfield Horner, president of Pratt and Whitney of Missouri said are based on a 25% more efficient utilization of manpower than existed at the firm's Hartford plant in 1942.

Admiral Ramsey and Brig. Gen. Edward S. Perrin, USAAF, gave high praise to the new 2800-C at a gathering of civil and business leaders in Kansas City, climaxing the tour of the plant.

Ramsey declared that the new engine "cannot be matched in the power weight ratio by any products I know of at the present time that may flow from the production resources of Mr. Hitler or Mr. Tojo." Perrin disclosed that the Air Forces are anxious to procure 2800-C's by the "thousands."

### Fairchild Withholds Report Pending Renegotiation

Until renegotiation proceedings on certain of the corporation's contracts with the Price Adjustment Section of AAF are further advanced, it will be impossible accurately to determine earnings for 1943 and to issue the corporation's annual report, J. Carleton Ward, Jr., president of the Fairchild Engine and Airplane Corp., advised stockholders.

Both consolidated sales and net income during 1943, prior to any adjustments resulting from renegotiation, were more than double the corresponding figures for 1942. While there have been substantial cancellations of the corporation's primary trainer airplane and Ranger engine contracts during the first quarter of 1944, unfilled orders at the end of March amounted to approximately \$165,000,000 as compared with about \$140,000,000 at December 31, 1942.

### Noorduyn Aviation, Ltd.,

### Decline in 1943

Net earnings of Noorduyn Aviation, Ltd., for 1943, without the refundable portion of the Excess Profits Tax, show a decline to \$20,179, or 21.6¢ per share of common stock, from \$38,234, or 41¢ per share, in the preceding year. Including the refundable portion, the amounts are \$142,179, or \$1.52 per share for 1943, against \$102,234, or \$1.09 per share, for 1942.

Working capital at the end of 1943 amounted to \$1,555,888, an improvement of \$60,004 over 1942.

In his report to the stockholders, President W. L. Bayer points out that the Company's standard profit under the Excess Profits Tax Act has not yet been determined by the Board of Referees and that the earnings figures shown are based on the maximum tax for which, in the opinion of the Directors, the Company may be liable. He also points out that the decline in the profit retained, without the refundable portion of the tax, is due to the fact that the Excess Profits Tax was 100% for the whole of 1943, whereas for the first 6 months of 1942 the rate was 75%.

He further states: "In the absence of a special ruling by the Board of Referees this estimate of the tax liability, under the terms of the Excess Profits Tax Act, can only be based on the company's capital employed at the end of 1939, as defined in the Act. Obviously, a company such as this, with small original capital and a large turnover, is particularly vulnerable."

Value of production of completed aircraft and spare parts, at cost, is given as \$33,115,472 against \$21,794,308 previous year. Only sales on fully completed contracts are carried into the Profit and Loss Statement, as final prices are not determined by the Government until after a contract has been completed. A reserve of \$1,020,433 has been set up to provide for possible adjustments of prices.

While dollar volume of production showed increase of 52%, the number of aircraft produced was over 100% more than in 1942, and more than 600% over 1941. Fifty-three pounds of Harvard airframe per man-hour was produced in December, 1943, compared with 385 in December, 1942. Number of employees was 11,610, increase of 33%.

W. L. Bayer, president, in his message to shareholders said: "Production of both the Harvard or AT-16 Advanced Trainer type aircraft, under license from North American Aviation, Inc. and of Noorduyn Norseman or UC-64 Transport type of company's own design, continued at accelerated rate; total number of aircraft produced during year was 1,228. It is noteworthy," he told shareholders, "that your company is the only manufacturer in Canada currently producing more than one type of aircraft, and the only producer of aircraft of Canadian design."

Balance Sheet, Dec. 31, 1943, shows assets of \$31,704,189. Current assets were \$31,204,792, including cash \$80,968; Dominion Bonds \$250,000; accounts rec. \$2,442,603; due from employees on War Loan Subscriptions \$947,240; cost of planes delivered \$19,034,000; inventories \$8,231,187; advances to sub-contractors and suppliers \$218,793. Deferred charges \$44,411; refundable portion of Excess Profits Tax \$186,000; fixed assets, less \$1,173,598 for depreciation, \$78,166; contracts and rights \$190,818.

### Aero Chamber's New Industrial Relations Research Dept. Opens

The Industrial Relations Research Department of the Aeronautical Chamber of Commerce opens May 1 under the direction of Randall Irwin, former management-labor consultant to the War Manpower Commission. Establishment in January of an Airframe Panel within the War Labor Board brought forward the need for an industry clearinghouse of labor relations information, leading to the creation of the new ACCA unit.

Paul S. Chalfant, formerly in the Industrial Relations Division of Douglas Aircraft Co. at Santa Monica, Calif., and member of the War Labor Board's West Coast Aircraft Committee will be Associate Director for the Western Region. M. J. Kane, for 20 years in charge of training supervisors for American Telephone and Telegraph Company and now assistant director of War Manpower Commission's Training-Within-Industry program is expected to become Associate Director of the Eastern Region.

The Research units will act as a clearing house for industrial and labor relations information and contacts between manufacturers and between the industry and government agencies dealing with labor relations. It is understood the Department will provide the airframe industry with information and advice as well as representation in the field of industrial relations, especially with the National War Labor Board and its Airframe Panel and other agencies dealing with wage determinations, stabilization and labor disputes.

The information developed by the Research Department will be made available to the War Labor Board and the Airframe Panel for assistance in determining airframe cases. In addition, its persons may be called on to serve as substitute industry members for the Panel, acting for Charles R. Hook, Jr., and John Medlin the regular industry members. Irvin has already been named to serve in the capacity of a substitute and the associate directors will probably be appointed in similar capacity at a later date to insure full industry representation at each hearing.

### E-R Facilities Available

Overhaul facilities of Embry-Riddle aircraft and engine division, which have been devoted exclusively to military operations, have been opened to aviation at large for the first time, according to an announcement by Joseph R. Horton, vice-president in charge of the division.

At Chapman Field, Embry-Riddle landplane base in Miami, the maintenance department under Bruce Hade, superintendent, for the first time will provide periodic inspections, minor repair and line maintenance for other than company or military ships.

Current liabilities were \$29,648,904 including bank loan \$627,759; for Dominion Bonds held for employees, per cent \$947,240; accts. payable and accrued charges \$2,070,836; progress payments and deposits \$25,312,767; provision for loss \$690,300. Reserve \$1,020,433; convertible Sinking Fund 5½% notes, due 1950, \$2,500; capital stock \$417,600; earned surplus \$98,751.



## Rain-Check For a Soldier!

"**AL** SAYS he wishes he could do more in this war...but I bet he's doing plenty where he is.

"Some guy, Al Heflin! He was my Leadman in Department 6310 back at Solar...a regular top sergeant for getting things done even if he had to *invent* a way...like his 'Leg-Puller', a tool that lines up a certain airplane exhaust manifold part in his department so accurately it fits the next assembly like a glove. Saves a lot of time and 'squawks' that 'Leg-Puller'."

"Al's just one of many Solar workers all in

there pitching. They're doing a swell war job with their special 'know-how' on *stainless steel*. It's a tough metal to form, but a honey for results.

"I've got a rain-check on my old job at Solar and when I get back it will be fun to work on stainless steel again."



SOLAR AIRCRAFT COMPANY • SAN DIEGO 12, CALIFORNIA

## ACCA Creates New Divisions

(Continued from page 19)

and arrange for the sales in accordance with WPB and ASU regulations.

The committee on by-laws was composed of Ryan and Marchev.

Named to prepare the general ACCA policy statement for the industry were Wilson and Douglas.

The statement calls for:

1. Maintenance of Army and Navy air forces "at such strength and in such state of readiness as to preclude a successful assault upon our country or its possessions."

2. Acquisition and maintenance of air bases essential to our security and that of overseas trade.

3. Facilitating the "orderly and economic expansion of domestic and international air transport and private flying."

4. Preserving a "strong aircraft manufacturing industry."

The statement accompanying the ACCA recommendation for a four-pronged air-power policy said in part:

"Today, aircraft production represents a substantial proportion of the nation's economy, and every opportunity should be afforded the industry to maintain itself at a reasonable level.

"Aircraft was able to achieve its present dominance because, in the years before the war, its development was permitted by a

long-range program evolved by the Morrow Board in 1926.

"This Board held that a strong air force is vital to national security, that the backbone of this air force must be a strong, private industry, and that a long-term, continuing program of procurement is essential to the creation of adequate engineering staffs and the acceleration of new technology.

"Thus, the Board fixed responsibility for American airpower jointly upon the Government and private industry.

"We take pride in the fact that the aircraft industry has fully discharged its responsibilities, even though at times the people's desire for peace caused them to falter in support of the Morrow Board's policy. Whereas, in World War I, we borrowed aircraft from our Allies, in World War II, we supplied them.

"We note with satisfaction the steps being taken to provide necessary legislation to permit terminating contracts speedily and disposing of war surpluses in an orderly manner.

"Domestic airlines are carrying a heavy load with greatly reduced equipment. It would seem in the public interest to step up their operations to a maximum, thus relieving the over-burdened surface transport and speeding the conduct of war business. International commercial air transport should be expanded as an immediate contribution to the war effort and a wise provision for future needs.

"As in the case of the air forces, the key to progress in commercial air transport is

technological development. Competition is essential in order that economic factors may direct technical progress along sound lines.

"The public character of aviation imposes upon it a dual role. Commercial companies, to stimulate technical progress, must compete in the realm of operations. At the same time, they must collaborate in the realm of policy to promote the public interest."

## Industry too Pessimistic

### Over Postwar—Marchev

Alfred Marchev, president of Republic Aviation Corp., believes the aircraft manufacturing industry has been overly pessimistic regarding postwar prospects.

If termination of contracts is given adequate protection and management adopts wise policies, the readjustment after the war will not be nearly as disastrous as some industry leaders have predicted, Marchev contends.

The shock of contraction to a smaller volume need not be as severe as believed, he claims, indicating that theoretically Republic might be able to maintain present employment with 20% of its present annual volume.

Marchev explained his theory as follows:

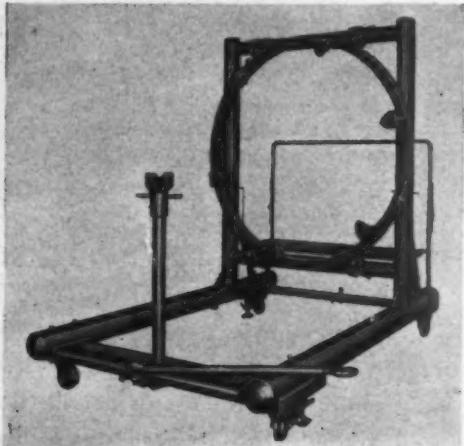
First of all, it must be realized that the aircraft industry subcontracts about 50% of its output to suppliers in the automotive, household accessory and other industries which will return to normal commercial production after the war. The plane industry's real capacity thus isn't 100,000 planes a year, but closer to 50,000 planes. Next, at Republic at least, the work-week could be cut from the long 58-hour stretch made necessary by the war to 40 hours, a further cut of 30% or more in output capacity. On top of this, Republic estimates, about 25% of its employees are housewives, clam diggers, gas station operators and other citizens who will voluntarily quit work at the war's end to return to their own occupations. Applying these various reduction percentages, Marchev arrives at the 20% figure.

He pointed out further that the smaller individual orders, probably for several kinds of planes in contrast to one type now produced by Republic, would make necessary more workers per unit of output. This might permit another contraction in volume of perhaps 25 or 30% without closing up facilities. If necessary, the present two shifts could be reduced to one although not without a considerable reduction in the number of employees engaged.

Preparing for postwar adjustment, Marchev said his company has for months been following a plan which would tie up a minimum of inventories in categories not definitely allocated for use in filling military orders. This liquid inventory in Republic's case has been cut to a relatively small figure and is moving toward one which could be written off entirely without seriously impairing the company's current position.

Republic feels, Marchev stated, that its government contract accounts, which are on a fixed-fee basis, are in such shape that settlement could be made almost immediately if a procedure similar to that outlined in the Baruch-Hancock report were in effect.

## The WHITING B-29 NACELLE ASSEMBLY UNIT



Here is a new assembly stand, specially developed for B-29 power plant assembly operations. For use both by manufacturers in assembly lines as well as in maintenance operations, the new unit is available in a number of modified forms. The rotatable

engine support and an adjustable work platform make all parts of the nacelle build-up easily accessible. Simplified, easily maneuverable, the B-29 Stand is another time- and trouble-saving unit in the Whiting line of matched handling equipment.

Main Office and Plant: 15647 Lathrop Ave., Harvey, Ill. Western Office: 1151 S. Broadway, Los Angeles 15, Calif. Canadian Subsidiary: Whiting Corporation (Canada), Ltd., Toronto, Ontario. Branch Offices in New York, Chicago, Buffalo, Birmingham, Pittsburgh, Cincinnati, St. Louis, and Washington, D. C.

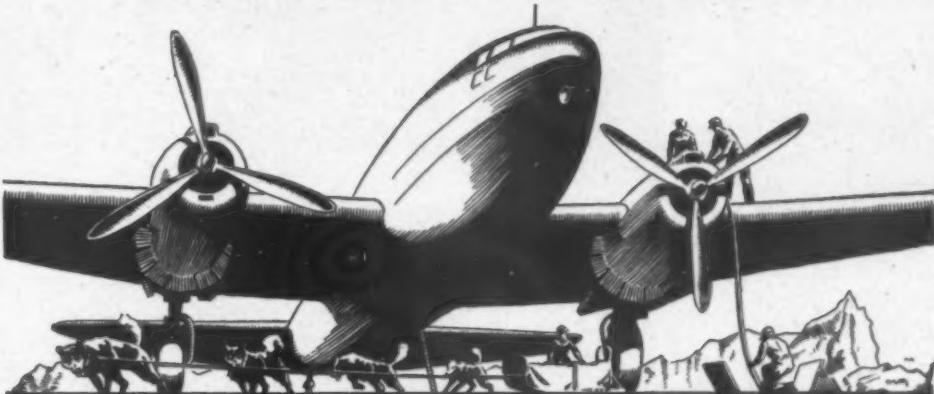
# WHITING CORPORATION



Aviation  
Division

# UP WHERE SAW MILLS HAVE TO BE FLOWN IN,

Bowser Engineered Airport Fueling Systems



Among the tougher aviation jobs of recent years was the installation of Northwest Airline's route from Minneapolis to Fairbanks, Alaska. It was largely through primitive country, some of it so isolated that air transport was called on for many abnormal jobs. For instance, a 24-bed hospital, complete with X-ray machines, was flown in. So was a saw mill. That gives you an idea of the country...and the installation problems.

Bowser Aviation Fueling Systems were chosen for two major reasons...

1. In airport operations, large and small and under all extremes of conditions, Bowser Sys-

tems have proved superior in the delivery of clean, dry, safe fuel.

2. Besides making an extensive standard line Bowser designs and builds systems to meet virtually every kind of special requirement, however unusual.

Bowser equipment includes both portable and fixed type systems, with capacities up to 4,000 g.p.m., marine terminal installations and defueling units.

This, too, is important—wherever you are, you're close to a complete Bowser service organization. BOWSER, INC., Fort Wayne 5, Ind.

## For Medium and Smaller Airports—BOWSER SERV-A-PLANE

Compact, entirely self-contained, durably built, easily installed, simple to operate... Serv-A-Plane is the right installation for medium and smaller airports, or for fueling smaller planes. Bowser's famous Xacto Meter assures accurate measurement and recording.

To operate Serv-A-Plane—Flip the switch to start the motor-operated pump... pull out the hose... dispense the amount desired... step on the pedal to operate the motor-driven hose rewind... stop the motor. That's all there is to it.



Serv-A-Plane serves clean, dry, safe fuel



## MANUFACTURING

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### Douglas' Elaborate Training Exhibits



These electrical panels in front of a giant C-54 used for training purposes at the Santa Monica plant of Douglas Aircraft Co. are being checked by, left to right, Instructors Jerry Broughton, Thatcher Gentry, and Ed Downing.



'Mickey' Proctor, Douglas employee, inspects a doll-size chair that goes into the plexiglas model, built to scale, of a C-54 used for training at Army air depots and flight training centers. Switches operate lights throughout the model, which carries all the operating lines and systems of the actual C-54.

### Brewster Union Dismissed from Probation by NWLB

The National War Labor Board, which has had the UAW-CIO union at Brewster Aeronautical Corp. under observation for six months, has now given the union local a clean bill of health and commendation upon its production accomplishment.

The War Labor Board report, devoted principally to the Johnsonville, Pa., plant, where the union engaged in a strike last August, showed that during the probation period, from October to March, inclusive, the plant was transformed from one that was 27% behind production schedules to one that is now ahead of schedule by 25.2%.

During the same period, the report in-

dicates, the production index a month rose from 100 to 370, while the manhours necessary to produce a plane were reduced from 27,006 in September, 1943, to 11,287 in March. The Board, while giving credit to the workers, also spoke highly of the plant's management under the direction of Henry J. Kaiser.

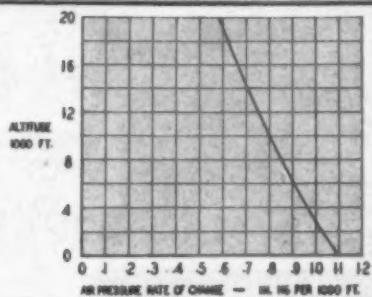
In dismissing the union local from probation the War Labor Board directed that a union-shop provision in its contract with the corporation be continued for the duration of the contract. This had been agreed upon by the corporation and the union sometime ago, but was jeopardized by last summer's strike. At that time, the Board said that at the end of six months it would "determine whether the union has so discharged its responsibilities as to warrant the continuation of the union shop."

## Three reasons to PRESSURIZE CABINS FOR LOW-ALTITUDE FLYING!

5. What do you dislike about flying?

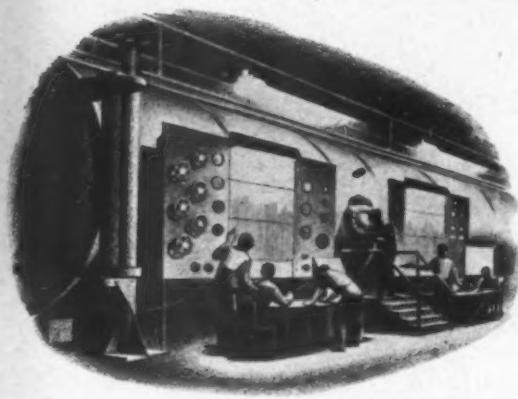
Can't stand the "ups and downs"  
I always feel dizzy  
makes my ears ache

A RECENT SURVEY reveals the most common passenger objections to air travel are the *discomforts caused by changing air pressures*. And as chart here shows, pressure changes are most severe at the comparatively low altitudes through which most airlines operate... and are greatest during the airliner's climb and descent.



IN OUR "STRATOLAB," AiResearch engineers have been perfecting controls to *hold pressure constant* during climbs and descents... to *adjust pressure gradually* during airliner flight from low to higher altitude airports.

AiResearch Cabin Pressure Regulating Systems will be able to hold *sea level* altitude inside airliners flying as high as 20,000 feet!



From this AiResearch engineering will come pressurized cabins for postwar airliners—"living room" comfort for passengers at all times... and increased travel business for the airlines.

Information is available now to U. S. aircraft manufacturers and airline operators.

**AiResearch**  
MANUFACTURING COMPANY  
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DIVISION OF THE GARRETT CORPORATION



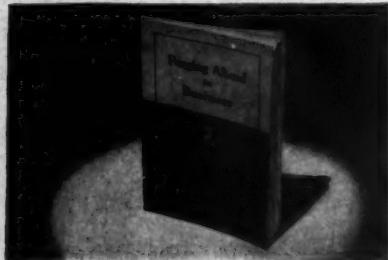
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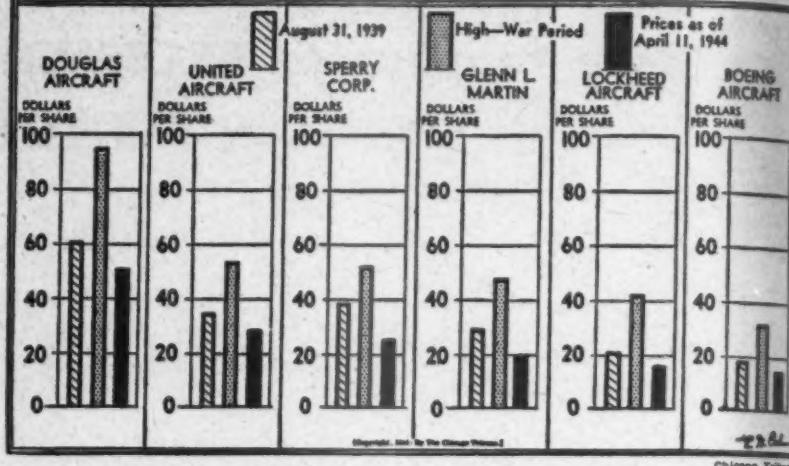
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## The War and the Aviation Stocks



## Leading Aviation Stocks

### New York Stock Exchange

	Week Ending April 15				Week Ending April 22			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	1,400	63	60	-2	1,600	60 1/2	58 1/2	-1
Aviation Corp.	11,100	4	3 3/4	- 1/2	15,700	37 1/2	36 1/2	- 1/2
Beech Aircraft	700	8 1/2	8 1/2	- 1/2	1,800	8 1/2	8 1/2	- 1/2
Bell Aircraft	2,200	12 1/2	11 1/2	- 1/2	3,400	11 1/2	10 1/2	- 1/2
Bendix Aviation	3,000	36 1/2	35 1/2	- 1/2	3,700	36 1/2	34 1/2	- 1/2
Boeing Airplane	3,500	14 1/2	14 1/2	- 1/2	6,100	14 1/2	13 1/2	- 1/2
Brannif Airways	4,300	15 1/2	14 1/2	- 1/2	6,800	14 1/2	14 1/2	- 1/2
Consolidated Vultee	3,800	13 1/2	13 1/2	- 1/2	7,100	13 1/2	12 1/2	- 1/2
Consolidated Vultee pfd	600	20	19 1/2	- 1/2	500	20 1/2	19 1/2	+ 1/2
Curtiss-Wright	18,300	5 1/2	5 1/2	---	23,500	5 1/2	5 1/2	---
Curtiss-Wright A	6,900	17	16 1/2	- 1/2	7,000	17	16 1/2	---
Douglas Aircraft	1,300	50 1/2	49 1/2	- 1/2	3,100	49 1/2	47 1/2	- 1/2
Easter Air Lines	700	35 1/2	34 1/2	- 1/2	1,600	34 1/2	33 1/2	- 1/2
Ex-Cell-O	5,600	29	28	- 1/2	5,800	28 1/2	27 1/2	- 1/2
Grumman Aircraft Eng	1,200	11 1/2	11 1/2	- 1/2	1,900	11 1/2	11 1/2	- 1/2
Lockheed Aircraft	3,400	16 1/2	16	- 1/2	6,800	16 1/2	15 1/2	- 1/2
Martin, Glenn L. Co.	5,800	19 1/2	19 1/2	- 1/2	5,400	19 1/2	18 1/2	- 1/2
National Aviation	2,200	11 1/2	10 1/2	- 1/2	2,000	11	10 1/2	+ 1/2
North American Aviation	4,200	8 1/2	8 1/2	- 1/2	7,300	8 1/2	8 1/2	- 1/2
Northwest Airlines	6,400	20	19	- 1/2	3,900	19 1/2	18	- 1/2
Pan American Airways	6,300	31 1/2	30	- 1/2	6,600	30	29	- 1/2
Penn-Central Airlines	1,800	14 1/2	13 1/2	- 1/2	4,700	14 1/2	13 1/2	- 1/2
Sperry Corp.	4,500	25 1/2	24 1/2	- 1/2	4,500	25	24 1/2	- 1/2
Thompson Products	600	38 1/2	38 1/2	+ 1/2	1,000	38 1/2	36 1/2	- 1/2
Trans and Western Air	400	18 1/2	18	- 1/2	2,700	18 1/2	17 1/2	- 1/2
United Air Lines	3,200	24 1/2	23 1/2	- 1/2	8,500	24	22	- 1/2
United Air Lines pfd	100	111 1/2	111 1/2	+ 1/2	1,000	111 1/2	109 1/2	- 1/2
United Aircraft	4,600	28	27 1/2	- 1/2	6,200	28 1/2	26 1/2	+ 1/2
United Aircraft pfd	700	103 1/2	103	- 1/2	800	103	102	- 1/2
Wright Aero	11,000	81	81	- 2 1/2	3,000	80	80	- 1/2

### New York Curb Exchange

	Week Ending April 15				Week Ending April 22			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply A	100	20	20	---	1,700	33 1/2	33 1/2	- 1/2
Aero Supply B	800	3 1/2	3 1/2	---	500	9	8 1/2	- 1/2
Air Associates	600	9 1/2	9	- 1/2	1,500	2 1/2	2 1/2	---
Aircraft Accessories	5,100	2 1/2	2 1/2	+ 1/2	1,100	8 1/2	7 1/2	- 1/2
Aro Equipment	2,100	8 1/2	7 1/2	+ 1/2	1,000	3 1/2	3	- 1/2
Bellanca Aircraft	400	3 1/2	3 1/2	---	900	11 1/2	10 1/2	- 1/2
Breeze Corp.	1,000	11 1/2	10 1/2	- 1/2	1,000	2	1 1/2	- 1/2
Brewster Aero	1,200	2 1/2	2 1/2	---	1,900	2 1/2	2 1/2	---
Cessna Aircraft	3,400	6 1/2	6	+ 1/2	3,100	6 1/2	6	---
Colonial Airlines	2,800	7 1/2	6 1/2	- 1/2	1,000	7 1/2	6 1/2	+ 1/2
Fairchild Eng and Air	6,400	2 1/2	1 1/2	- 1/2	3,700	2	1 1/2	- 1/2
Irving Air Chute	300	8 1/2	8 1/2	---	100	8 1/2	8 1/2	---
Northeast Airlines	4,000	10	9 1/2	- 1/2	3,300	9 1/2	9 1/2	---
Republic Aviation	2,700	4 1/2	4	- 1/2	3,800	4 1/2	3 1/2	- 1/2
Ryan Aero	100	3 1/2	3 1/2	---	700	3 1/2	3 1/2	---
Solar Aircraft	1,000	3 1/2	3 1/2	---	900	3 1/2	3	- 1/2
United Aircraft Products	1,000	8 1/2	7 1/2	- 1/2	1,200	7 1/2	7 1/2	- 1/2
Western Air Lines	1,000	8 1/2	7 1/2	+ 1/2	1,300	7 1/2	7 1/2	- 1/2



## THE NUT THAT SOLVED THIS PROBLEM

### How to Make Each of 328 Fastenings Carry an Equal Share of the Load

Each wing of a DC-3 transport plane is fastened on with 328 nuts and bolts.

Unless the stress and strain are distributed equally, some of the bolts shear off.

The answer was found in Elastic Stop Nuts. These nuts can be given precisely the right tension — then lock fast.

This is one of the important structural fastening jobs which Elastic Stop Nuts have solved.

We've been told Elastic Stop Nuts, by solving many such structural fastening problems, have revolutionized aircraft construction.

These nuts lock fast — are safe. They stay tight and secure even in the face of unusual vibration. That's why they are approved for fastening such vital parts of an airplane's structure.

It's the elastic collar that does the trick. It molds itself to the bolt threads and grips them tight. The nut can't jiggle loose.

After the war ESNA nuts with the red collar will be ready to do the hard jobs of peacetime production.

Any fastening problem you anticipate will be welcomed by our engineers. They are ready to help you solve it and recommend the proper Elastic Stop Nut.

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THE BOLT BY  
THE ACTION OF  
THE GRIPPING  
RED COLLAR.

THE COLLAR  
IS ELASTIC.  
THE NUT CAN BE  
USED TIME AND  
TIME AGAIN.

MADE IN ALL SIZES AND TYPES - WITH  
THREADS TO FIT ANY STANDARD  
TYPES OF BOLTS.

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TRADE MARK OF  
ELASTIC STOP NUT CORPORATION  
OF AMERICA

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LINCOLN, NEBRASKA

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**CHIEF LINESMAN** — Must have design experience in all-metal construction.

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**SENIOR and JUNIOR LAYOUT DRAFTSMEN** — Engineering Lofting, Body Group, Mechanical, Power Plant, Flight Controls, Instruments and Furnishings, Electrical and Communications.

**SENIOR and JUNIOR DETAIL DRAFTSMEN** — For work in all groups. Experience in Aircraft Engineering is desired, but not essential. A thorough working knowledge of Mechanical Drafting is necessary for all grades above Detail Draftsmen.

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STATEMENTS OF AVAILABILITY**

Send applications with complete details of your experience and qualifications to Dept. D, Kellett Aircraft Corporation, State Road and Lansdowne Avenue, Upper Darby (Philadelphia), Pennsylvania.

## KELLETT

OLDEST ROTARY WING AIRCRAFT MANUFACTURING COMPANY



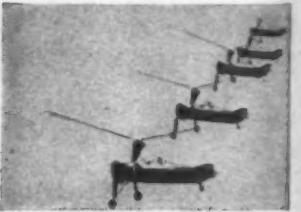
In 1933 a Kellett rotary wing ship accompanied Admiral Byrd on his South Pole voyage.



One of the Kelletts in Dept. of Agriculture tests for Dutch elm disease scouting, 1937.



Eastern Air Line's Kellett flew for a full year from Philadelphia's post office roof, 1938.



A flight of 1938 U. S. A. A. F. Kelletts performing in training maneuvers.



Most recent Kellett development (1943) for the Army Air Forces—YO-60 type.



Kellett looks forward enthusiastically to a future of expanding service to the nation.

## Manufacturing Digest

BOOTS NUT CORPORATION's president, Col. N. Jay Boots, recently said: "I have only one vote to offer in November to a presidential candidate, but that one vote will go only to the man who will help retain for all time in our country a standing air force—an air force that will be the equal of the combat air forces of the next two greatest powers." Col. Boots was commandant of Selfridge Field, Mich., during World War I.

CURTISS-WRIGHT CORP. reports that the daily rate of production of Helldivers at its Columbus, O., plant has been more than doubled in the past six months. "This increase in production has been accomplished in the face of a virtual changeover in models, from the SB2C-1 to the SB2C-3," says the report. "The improved model, faster and more powerful, contains 75 major design changes, including a Wright Cyclone engine with greater horsepower, a four-bladed Curtiss electric propeller instead of the former three-bladed propeller, and an important cabin change."

CHRYSLER CORP. has been granted permission by the AAF Materiel Command to announce that the 2300 hp Wright engines being made at its Dodge Chicago Plant are for the B-29 and other large aircraft. Employment has already passed 23,000, and electric power equal to the requirements of an average city of a million people is being consumed. Under present rates of production, 3,000,000 lbs. of aluminum, 1,000,000 lbs. of magnesium, and 3,000,000 lbs. of steel are being used a month.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION's Model 39 made its first successful test flight April 15, flying for 34 minutes with Chief Test Pilot D. E. Shannon at the controls.

CURTISS-WRIGHT CORP. announces that SB2C Helldiver dive-bombers are now powered by an air-cooled Wright Cyclone engine able to turn up "substantially more horsepower than the 1,700 hp Cyclones with which earlier types were equipped." Horsepower rating of the new engine is restricted information. Replacing the three-bladed Curtiss propeller which was standard on earlier Helldivers is a Curtiss electric constant-speed, full-feathering propeller with four six-foot hollow steel blades.

GENERAL MOTORS announces, with Navy Department approval, that a revamped Wildcat pursuit plane, lighter than its Grumman-designed predecessor, is in production. It is especially designed for shorter takeoffs and slower landings on aircraft carriers.

FAIRCHILD AIRCRAFT DIVISION, Fairchild Engine and Airplane Corp., announces that in 50 months it has produced 5,000 PT airplanes. Included in the 5,000 were 154 PT-19's (commercially designated as the M-62), which were sold to CPT and WTS operators for secondary flight training in 1940.

GLENN L. MARTIN CO. reveals that a new flying boat facility, designed to speed the testing and delivery of PBM Mariner and JRM Mars flying boats, is being rushed to completion in Baltimore. The new base will be fully equipped to handle the inspection, packing, testing, operation, and servicing of big flying boats.

NORTH AMERICAN AVIATION reports that two new models of the B-25 Mitchell bomber are in production. Coming off production lines in the company's Kansas plant is one version carrying twelve .50 caliber machine guns in addition to its normal bombardment equipment. The Pacific Coast plant is producing another model equipped with fourteen .50 caliber machine guns and a 75 millimeter cannon that supplements its bomb-carrying facilities. North American says this is "believed to be the most heavily armed airplane in production anywhere in the world."

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and classroom studies combine with actual flight experience to make top-notch Army Pilots

Photographs made at Southeastern Air Service, Inc. schools; approved for publication by Bureau of Public Relations, War Department, Washington.



The theory of flying is taught in our classrooms and practical flight instruction begins . . . in the air . . . at the controls of the ships which we maintain for our Aviation Cadets.

Later . . . as commissioned pilots . . . Aviation Cadets of the Army Air Forces will have mastered every intricacy of the modern aircraft engine, theory of flight, navigation, meteorology and aircraft recognition. No phase of training is more important than *Primary Training*. Here . . . in this work . . . is set the pattern of correct flying, and it is here that the Aviation Cadet is first "on his own"—aloft—as first solo hours begin to accumulate under competent instruction.

Through this long war even our veteran technicians—both instructors and mechanics—have acquired valuable new experience. This will greatly benefit our services to commercial and private flyers after the war.



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**NO. 8 ROTARY SHEAR**



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- ✓ **DUAL UPPER CUTTER HEAD CONTROL** is achieved through HEAD lever for quickly raising or lowering a hand crank for fine adjustments and use during flanging operations.
- ✓ **ADJUSTABLE WORK LIGHT** helps increase operator's accuracy and speed and reduces fatigue.
- ✓ **REMOVABLE WORK TABLE** allows greater clearance and freedom in trimming odd-shaped pieces.
- ✓ **MODERATE PRICE** offers economy—the Model 8 is the least costly power-operated shear of its cutting capacity on the market.
- ✓ **OTHER OPERATIONS** may be performed—special attachments make slitting, circle-cutting, and flanging possible.

Its simplicity and versatility make the Quickwork-Whiting Model 8 Rotary Shear excellent for both general shop work and straight production of standard forms. The Model 8 is fast in operation (10 to 33 feet per minute), accurate, easy to handle, economical, and modern in design. Its capacity,  $\frac{1}{8}$  inch mild steel.

Particularly useful with aluminum alloy and stainless steel of the types used in the aircraft industry, the Model 8 Shear adapts itself especially to trimming heavy gauge, irregular,

straight and irregular cutting and deep drawn stampings. With special attachments which are available as extras, this shear can be used for flanging, joggling, circle-cutting, and slitting. Write for further information.



QUICKWORK - WHITING DIVISION

# WHITING

CORPORATION

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## Surplus Group Headed By Pogue Scheduled To Meet Next Week

Meetings are scheduled for next week by the Surplus Aircraft Administration subcommittee of the Surplus War Property Administration, headed by L. Welch Pogue. Members are Stokeley W. Morgan, head of the State Department aviation division; Col. F. Trubee Davison, chief of special projects, AAF; Rear Admiral Lawrence B. Richardson; William A. M. Burden, Assistant Secretary of Commerce; Walter E. Joyce, vice president, Defense Plant Corp.; and Paul T. David, chief fiscal analyst for the Budget Bureau, it was announced today.

Among the matters which will be considered when the committee begins discussions are: an inventory of "surplus" aircraft; considerations to guide the Services in declaring aircraft surplus; and the time when the inventory should be started, now, or upon establishment of a transport fleet to be maintained by the permanent surplus organization; size of Services after the war; whether surplus aircraft should be put in airworthy condition for purchaser, completely converted for ultimate use or turned back to manufacturers for repair, conversion and delivery; methods of disposition sale; whether airlines are to have option of leasing or purchasing or both; number of planes airlines could use; policy on sales to aviation schools, educational institutions, Government units, foreign governments; and whether there should be a laid-up fleet for emergency use.

## Aviation Securities Over the Counter

(Courtesy Merrill Lynch, Pierce, Fenner, and Beane)

	April 15		April 22
	Bid	Ask	Bid
All American Aviation	5 1/4	6 1/4	5 1/2
American Airlines Pfd.	31	32 1/2	31
American Export Airlines	14 1/4	14 1/2	14 1/4
Brannif	10 1/2	11	10 1/4
Chicago & So. Com.	4 1/2	5	4 1/2
Chicago & So. Wts.	11 1/4	12	11
Continental Airlines	23	26	23 1/2
Delta Airlines	2 1/2	3 1/2	3
Inland Airlines	5 1/2	5 1/2	5 1/2
Mid-Continent	17 1/2	18	17 1/2
National	8 1/2	9 1/2	8 1/2
Northeast Airlines	27	28	27 1/2
Penn Cent. Airlines Pfd.			
<b>MANUFACTURERS</b>			
Aeronca	2 1/2	3 1/2	3
Air Associates	8 1/2	9	8 1/2
Aircraft & Diesel	1	1 1/4	1
Aircraft Accessories	2 1/2	2 1/2	2 1/2
Airplane & Marine	2 1/2	2 1/2	2 1/2
Airplane Mfg. & Supply	60c	90c	60c
Central Airports	5 1/2	5 1/2	5 1/2
Columbia Aircraft Prod.	5 1/2	5 1/2	5 1/2
Continental Aviation	2 1/2	3 1/2	2 1/2
Delaware Aircraft Pfd.	25c	25c	25c
Gen. Aviation Equip.	1	1 1/4	1
Globe Aircraft		1.50	
Harlow Aircraft	20c	35c	20c
Harvill Corp.—Com.	1 1/2	2	1 1/2
Harvill Corp.—Pfd.	75c	1.00	75c
Interstate Aircraft & Eng.	6 1/2	7	6
Jacobs Aircraft	3	3 1/4	3
Kellett Aircraft	1 1/4	1 1/2	1 1/4
Kenner Motor	80c	95c	80c
Liberty Aircraft	12 1/4	12 1/2	12 1/2
Luscombe	5 1/2	5 1/2	5 1/2
Menasco Mfg.	95c	1.15	90c
Northrop Aircraft	4 1/2	4 1/2	4 1/2
Piper Aircraft Com.	7 1/2	7 1/2	7 1/2
Piper Aircraft Pfd.	18	19 1/2	18
Pitta Aviation Ind.	4 1/2	6	4 1/2
Rohr Aircraft	6 1/2	6 1/2	6
Std. Aircraft Prod.	80c	1.00	80c
Taylorcraft Com.	1 1/2	2 1/2	1 1/2
Taylorcraft Pfd.	6	6 1/2	6
Timm	35c	45c	35c
Utd. Aircraft Prod. Pfd.	15 1/2	16 1/2	15



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# Want to move 35 Tons?



Even this small actuator  
weighing but 3.3 pounds  
can move 1200 pounds.

WE wouldn't tell you how fast America's fighting planes go. That's a military secret.

But we've all read it's well over 300 miles an hour.

We've read too how they hit 700 or 800 miles an hour in dives. And how paint was peeled by the air pressure.

Did you ever stop to think that the plane's flaps and controls have to work surely, smoothly and dependably against pressures like that?

It's done by such mechanisms as you see in the picture.

They are called Lear Actuators.

They are powerful. Some can push up to 75,000 pounds.

They are light. That's a "must" in aircraft.

They are small. They have to fit in available space.

A good many preconceived notions had to go by the board to meet all these requirements. For example, the little electric motor that runs them is full of revolutionary engineering refinements.

Every man and every minute we have now can't make all the motors and actuators that we would like to deliver for Uncle Sam's aircraft.

But the day is coming when they will have different jobs to do. New jobs on peacetime products—perhaps like steering ocean liners, or parking cars, or things we've never thought of.

That is one reason for this advertisement. We want to know who can use an actuator or a motor like these.

Another reason is, we want you to know that there is available the kind of thinking and engineering which have produced these and some 250 other Lear products.



ON NOSE...BELLY...TOP AND TAIL...YOU'LL FIND

# Plexiglas TURRETS

**HARD-HITTING** power turrets bristle from American heavy and medium bombers. From nose, belly, top or tail, their guns command surrounding skies... ready to fight off attack from any angle.

These strategic battle stations are enclosed in PLEXIGLAS—Aviation's Standard Transparent Plastic.

The crystal-clarity of PLEXIGLAS enables the gunner to aim and fire accurately. Its strength protects him from wind, weather and freezing slipstreams. Its light weight saves precious pounds for bigger bomb loads and larger fuel supplies.

In addition to these inherent advantages, every piece of PLEXIGLAS carries with it the cooperation of the Rohm & Haas technical service staff—physicists to calculate the best optical contours for sighting, engi-

neers to discuss details of mechanical design, production men and facilities to fabricate experimental parts.

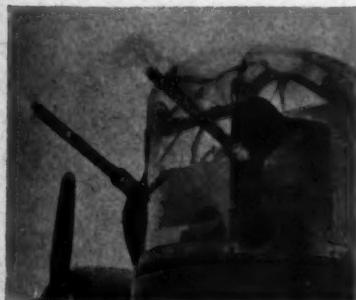
To obtain the benefits of this active assistance in your plastics development work, call our nearest office—Philadelphia, Los Angeles, Detroit, Chicago, Cleveland, New York.

*Only Rohm & Haas makes PLEXIGLAS.*



3 awards to Rohm & Haas Company and its associated firms, The Resinous Products & Chemical Company and Charles Lennig & Company.

PLEXIGLAS is the trade-mark, Reg. U. S. Pat. Off., for the acrylic resin thermoplastic sheets manufactured by the Rohm & Haas Company.



**ON THE CONSOLIDATED B-24** the new Emerson-designed, Emerson-built nose turret of PLEXIGLAS adds a fourth power-operated death sting to the other three, PLEXIGLAS turrets—Martin top, Sperry retractable belly, Consolidated tail.



**ON THE BOEING B-17G**—latest version of the Flying Fortress—both the Sperry-designed top turret, built by Emerson and Steel Products, and the Sperry-designed belly turret, built by Briggs and Emerson, incorporate PLEXIGLAS advantages.



**ON THE NORTH AMERICAN B-25**—the famous Mitchell medium bomber—the top turret is designed and built by Bendix. Like so many other power turrets on America's best-known bombers, this turret is constructed of crystal-clear PLEXIGLAS.



**ON THE MARTIN B-26** both the tail turret and the adaptable top turret—which fights not only on this plane but also on the Consolidated B-24—are made of PLEXIGLAS, to give clear, unobstructed vision to the gunners.



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# Manufacturing Personnel



Bennett



Crane



Birren



Latta



Morehouse



Beardsley

**Alfred B. Bennett**, well known merchandiser of civilian aircraft before the war, has been named director of postwar sales for Aeronca Aircraft Corp.

**William B. Birren** has been named sales and service manager of Wright Aeronautical Corp., and **John T. Wetzel**, formerly assistant service manager, has been named service manager.

**Dr. Stephen J. Zand**, director of the Vose Memorial high altitude laboratory of the Sperry Gyroscope Co. at Great Neck, L. I., has been elected a Fellow of the Royal Aeronautical Society.

**Karl P. Grube** has been appointed manager of the newly created Corporate Termination Claim Committee of Douglas Aircraft Co.

**Elmer R. Crane** of Washington, D. C., has been named general manager of the Radio Division of Lear Avia, Inc.

**C. G. Morehouse**, formerly executive vice president of Standard Parachute Corp., has been elected president of the concern.

**William Richard Latta** has been named assistant to the president of Harvey Machine Co., Los Angeles. He will continue in his capacity as public relations director.

**Guy E. Beardsley, Jr.** has been named assistant to the chief engineer of Pratt and Whitney Aircraft Division, United Aircraft Corp. **Alexander H. King** has been appointed chief designer; **Andrew L. Riker** becomes assistant chief inspector; **Donald S. Hersey** succeeds Beardsley as chief of auxiliary development; **John H. Merchant** has been assigned to head a new division on fluid mechanics and heat flow; **Benjamin T. Howes**, as project engineer, will take over engine cooling and volumetric efficiency.



## A SERVICE

- All war contractors today own very considerable amounts of surplus materials.
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- Buyers are finding the Master Inventory Record of war surpluses maintained by us to be an unequalled "Finding Service" for their requirements.
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## MANUFACTURING

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .



## New Appointments

Milo G. Burcham has been appointed chief pilot in charge of flight operations of Lockheed Aircraft Corp.

Bertram N. Snow, formerly manager of foreign projects for Douglas Aircraft Co., has been appointed assistant to the president of the Garrett Corp.

Louis C. Boochever, of the New York office of Hill and Knowlton, public relations firm, has become resident director of public relations for the Allentown Division, Consolidated Vultee Aircraft Corp.

Edward Curtis Wells, chief engineer of Boeing Aircraft Co., has been named to the Seattle Junior Chamber of Commerce as "Seattle's Young Man of the Year."

Henry Kerr has been named by Ray Industries to handle aircraft sales engineering activities.

Howard Hall, steel manufacturer of Cedar Rapids, Ia., and James E. Sweeny, works manager of Kropf Forge Co., has been named directors of Kropf Forge Co. and Kropf Forge Aviation Co. Sweeny also has been made a vice president.

Hugh Willis, general sales manager of Sperry Gyroscope Co., has been elected a vice president of the company.

Oscar R. Crawford, staff assistant of Interstate Aircraft and Engineering Corporation's Wilshire plant, has been promoted to plant manager. Darwin L. Adams, former New York City editor and advertising man, has joined Interstate's public relations staff.

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## Aircraft Computers



### NAVIGATIONAL COMPUTER

Enables a pilot or navigator of aircraft to quickly and accurately solve dead reckoning navigational problems without mental arithmetic. It determines the relation between Air Speed, Ground Speed, Wind Direction and Velocity, Heading, Track and Magnetic Variation. It also incorporates a circular time-speed-distance slide rule, conversion tables and variation chart.

**COX AND STEVENS AIRCRAFT CORPORATION**

P. O. Box 30

Mineola, N.Y.

## New Lycoming Power Unit May Be Adapted to Buses

A self-contained power unit weighing less than one-third as much as engines of comparable output used in buses and other motor vehicles currently operating on American highways has been developed by Lycoming Division, The Avia Corporation. The unit, described by Lycoming as "package power," is a modification of the standard O-435 aircraft engine manufactured by the division. It combines a six-cylinder horizontally opposed aircraft engine with all accessories plus a clutch and flywheel, into a single self-cooled package. Air-cooled, it is said to be immune to temperature extremes.

FORT WORTH DIVISION, Consolidated Vultee Aircraft Corp., observed its second production anniversary April 17 with an announcement that more than 2,000 four-engine bombers and transports had gone from the plant during the past year. The products were C-87 Liberator Express planes and two types of B-24 Liberator bombers.

IN A STARRY SPHERE OF PEACE



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## Manufacturing Briefs

CHEVROLET DIVISION, General Motors Corp., announces that it will undertake the production of a new, more powerful type of Pratt & Whitney aircraft engine. The new unit, a refinement of the P. & W. R-2800, an 18-cylinder engine, is designed to meet demands for a heavier duty engine to power the faster fighter planes and longer range bombers now envisioned by the air forces.

BENDIX AVIATION CORP. declared a dividend of 75c a share on its capital stock Feb. 23. The dividend is payable March 31 to stockholders of record March 10.

GENERAL MOTORS CORP. on Feb. 7 declared a dividend of 75c per share on the outstanding common stock, payable March 10 to stockholders of record Feb. 17. This compares with a dividend of 50c per share paid in the last quarter of 1943. Dividends of \$5 per share were paid in 1943 and 1942, compared with dividends of \$3.75 in the last peace years of 1941 and 1940.

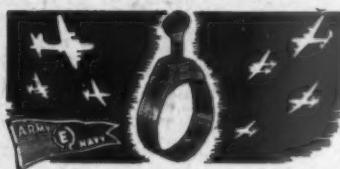
## APMA Editors' Group



Among those present at the recent Los Angeles meeting of the employee publication editors' group of the Aircraft Parts Manufacturers' Association were, left to right: Edwin Benedict, Century Metal Craft Corp.; Maj. Howard H. Adams, public relations officer of the AAF Western Procurement District; and Ted Burke,

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NORTHWESTERN AERONAUTICAL CORP., Minneapolis, for additional equipment at a plant in St. Paul costing approximately \$400,000; overall commitment of approximately \$800,000.

FORD MOTOR CO., Dearborn, Mich., for additional equipment at plants in Dearborn and Ypsilanti costing approximately \$45,000; overall commitment of approximately \$325,000.

CONTINENTAL MOTORS CORP., Detroit, for additional plant facilities in Garland, Tex., at a cost of approximately \$600,000; overall commitment of approximately \$1,500,000.

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